

digital

RH70
Engineering Drawings
Digital Equipment Corporation

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EQUIPMENT CORPORATION

DRAWING DIRECTORY

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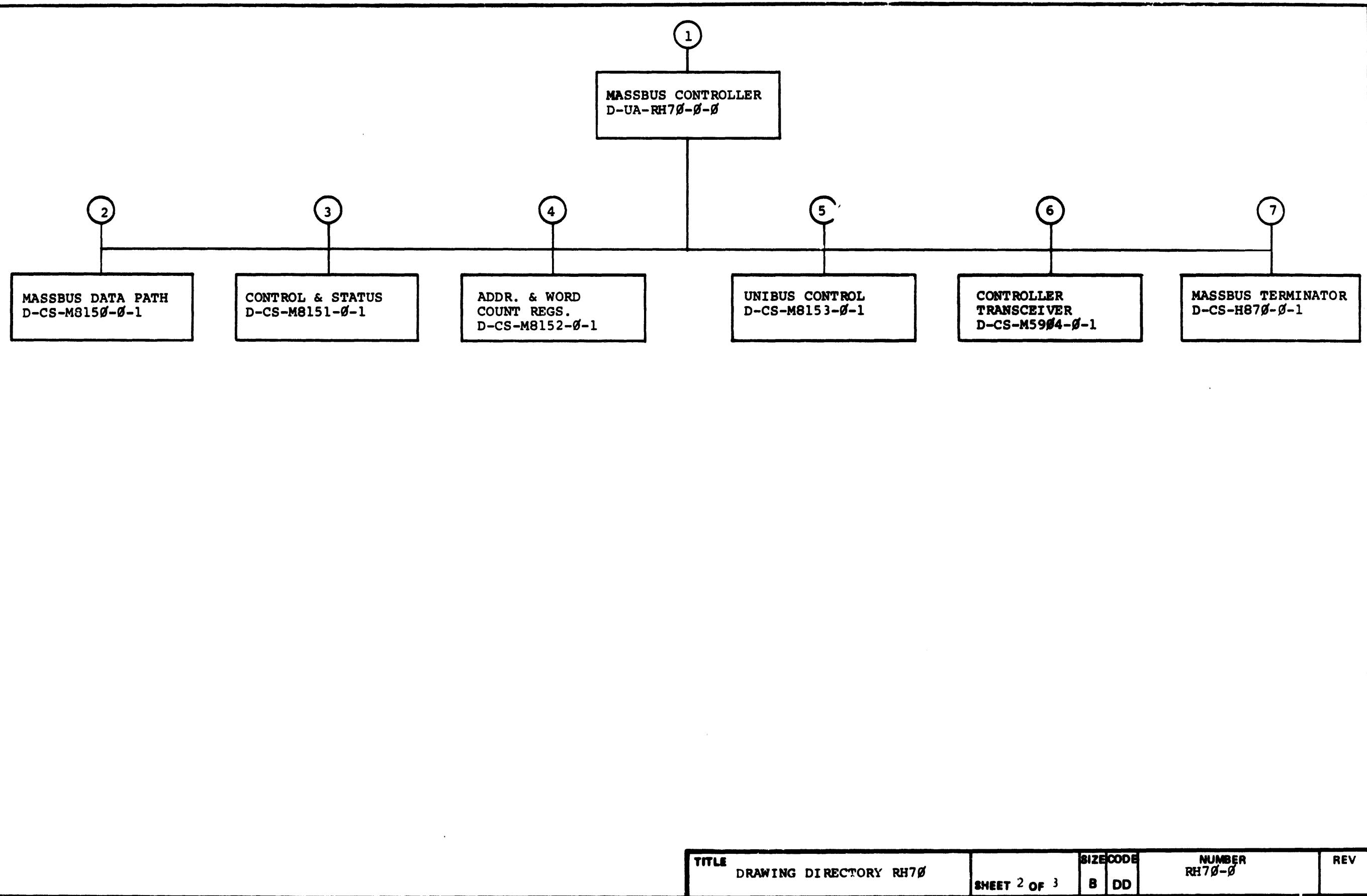
CUSTOMER PRINT SET INDEX

DRAWING DIRECTORY RH70	B-DD-RH70-0
MASSBUS CONTROLLER	D-UA-RH70-0-0
MASSBUS DATA PATH	D-CS-M8150-0-1
CONTROL AND STATUS	D-CS-M8151-0-1
ADDR. AND WORD COUNT REGS.	D-CS-M8152-0-1
UNIBUS CONTROL	D-CS-M8153-0-1
MASSBUS TRANSCEIVER	D-BS-RH70-0-1
UNIBUS CABLE AND GRANT CHAIN	D-IC-KB11-B-7
RH70 DATA BUFFER TIM. DIAG.	D-TD-RH70-0-5
WRITE MASSBUS TIMING. DIAG.	D-TD-RH70-0-6
MASSBUS TIMING DIAG.	D-TD-RH70-0-7
WRITE COMMAND FLOW DIAG.	D-FD-RH70-0-2
WRITE CHECK COMM. FLOW DIAG.	D-FD-RH70-0-3
READ COMMAND FLOW DIAG.	D-FD-RH70-0-4
CONTROLLER TRANSCEIVER	D-CS-M5904-0-1
MASSBUS TERMINATOR	D-CS-H870-0-1

sequence

THIS IS PRINT SET

REVISIONS		USED ON OPTION/MODEL	DATE	TITLE	
REV	CHG. NO.	CHG. NO.	DATE	DRAWING DIRECTORY	
DATE				RH70	
		J. FERGUSON	3/28/75	PROJ. ENG.	RH70
		CARD.	DATE		
		Ferguson	3-11-75		
		J. Jenkins	4/10/75		
		Z Taylor	4/11/75		
		FIELD SERV.	DATE	SIZE	NUMBER
				B	RH70-0
				DD	
				DIST	
		SHEET 1 OF 3			
			4/10/75		



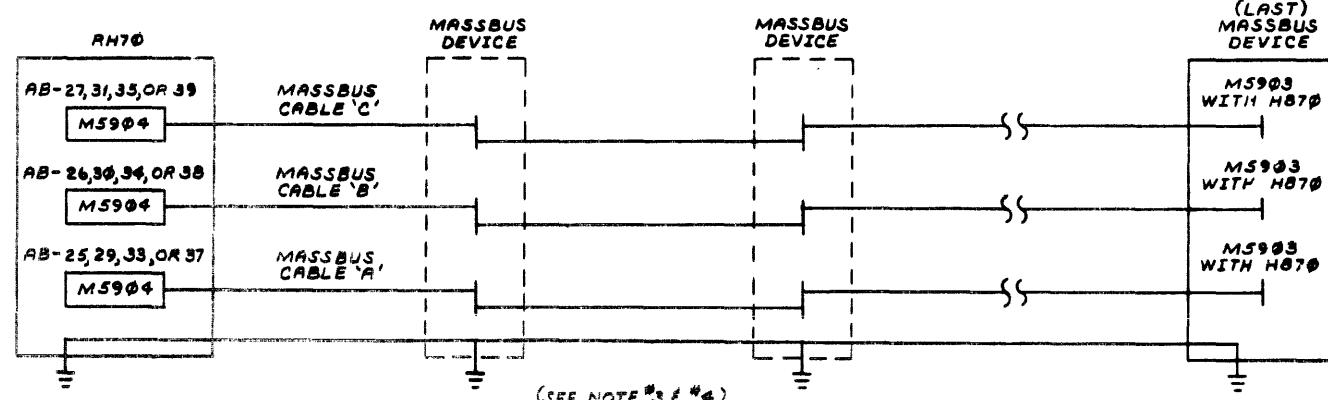
TITLE	DRAWING DIRECTORY RH70	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
			B DD	RH70-0	

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NOTES

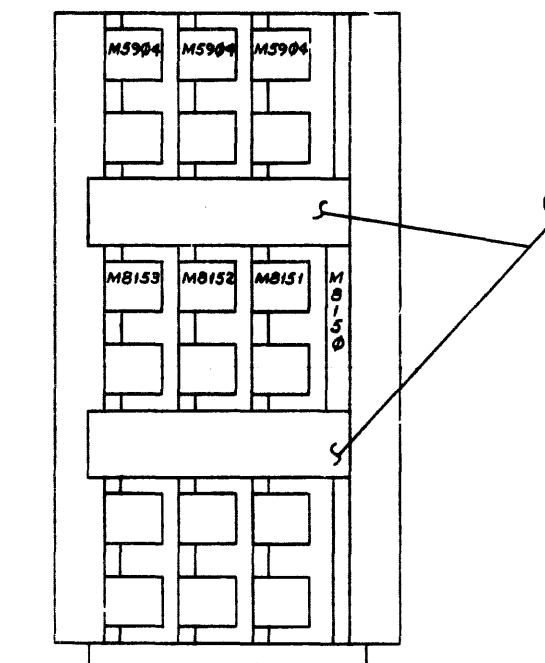
1. VIEW OF LOGIC IS FROM MODULE SIDE.
2. SELECT PROPER JUMPER SETTINGS FOR UNIBUS ADDRESS, REGISTER LENGTH FIELD, AND VECTOR ADDRESS AS PER MASSBUS DEVICE USED.
3. INSERT ONE H870 MASSBUS TERMINATOR MODULE IN J2 (ETCH SIDE OF H870 TO COMPONENT SIDE OF M5903) OF EACH OF THE M5903 MASSBUS TRANSCIEVER MODULES IN THE LAST MASSBUS DRIVE.
4. COLORED EDGE OF MASSBUS CABLES SHOULD BE FACING MODULE HANDLE OF M5904 IN R70 & M5903 IN MASSBUS DRIVES.
5. ONE H870 MASSBUS TERMINATOR MODULE WILL BE INSERTED IN J1 (COMPONENT SIDE OUT) OF EACH OF THE 3 M5904 MODULES FOR SHIPMENT ONLY.
6. M5904 MODULES MUST BE ETCH REVISION E OR LATER FOR PROPER MECHANICAL POSITION OF CABLE CONNECTOR ON MODULE.

VIEW FROM MODULE SIDE



REVISIONS	CHANGE NO.	REV.

LEGEND	
NUMBER	VARIATION
RH70-A	MASSBUS CONTROLLER PDP11/70



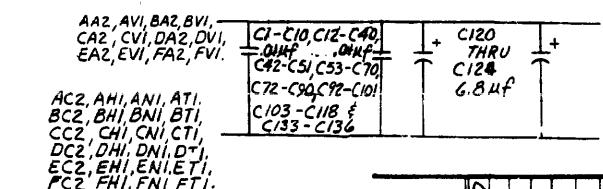
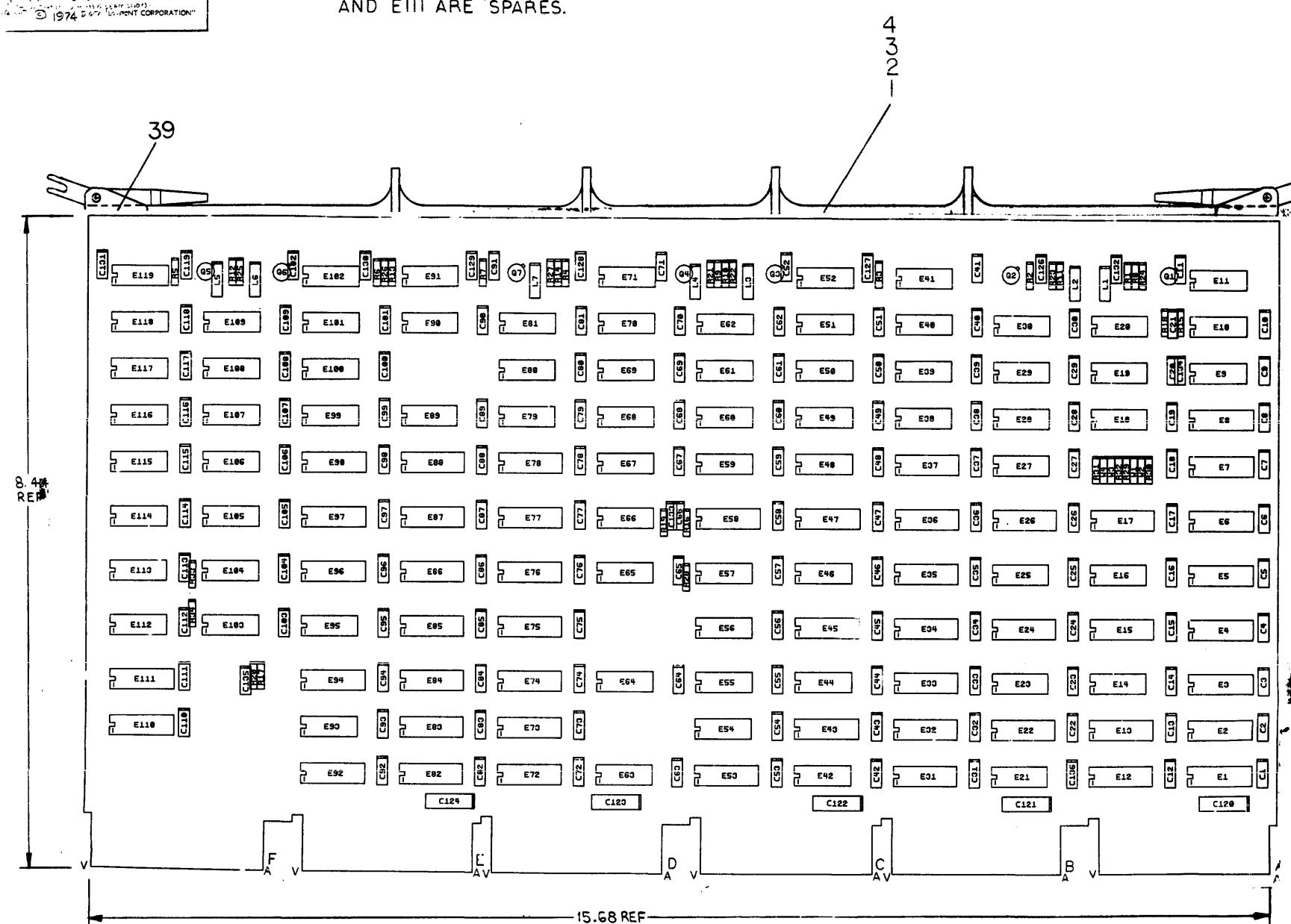
RH70
CONTROLLER

11/70 UNIT ASSEMBLY	D-UA-11/70-0-0	REF
KB11-B WIRELIST	H-WL-7010829-0-1	REF
3 MASSBUS TERMINATOR	H870	7
2 MODULE HOLDER	1209856	6
3 CONTROLLER TRANSCIEVER	MS994	5
1 UNIBUS CONTROL	MB153	4
1 ADDR. & WORD COUNT REGS.	MB152	3
1 CONTROL & STATUS	MB151	2
1 MASSBUS DATA PATH	MB150	1

FIRST USED ON OPTION/MODEL		MASSBUS DATA PATH	MB150
RH70		QTY.	DESCRIPTION
DIMENSIONAL TOLERANCE		PARTS LIST	
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED		DRN: <i>J. Vincent</i>	DATE: 3-7-75
INCHES		CHK'D: <i>Parham</i>	DATE: 3-11-75
UNLESS OTHERWISE SPECIFIED		SPK'D: <i>J. L. Jones</i>	DATE: 4-10-75
MILLIMETERS	INCHES	ANGLES	ASSEMBLED: <i>digitized</i>
XXX = ±0.10	JOCK = ±.005	45° 30'	PROJ. NO. 1: <i>J. Vincent</i>
XX = ±0.05	JOX = ±.002		PROJ. NO. 2: <i>J. Vincent</i>
X = ±.02	JX = ±.1		PROJ. NO. 3: <i>J. Taylor</i>
THIRD ANGLE PROJECTION		NEXT HIGHER ASSEY.	
REMOVE SURFS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		SIZE CODE NUMBER REV.	
MATERIAL: <u>11</u>		B- DD- RH70-0	
FINISH: <u>11</u>		SCALE: <u>11</u>	SHEET 1 OF 1
		DIST:	RH70-0-0

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NOTES: I.C SLOTS E12, E53, E110,
AND E111 ARE SPARES.



IC DEC 74157	8	16
IC DEC 745157	8	16
IC DEC 745174	8	16
IC DEC 74174	8	16
IC DEC 74298	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

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REF	X-Y COORDINATE HOLE LOCATION	K-CO-8150-0-4
REF	ASSY/DRILLING HOLE LAYOUT	D-AH-8150-0-5
REF	MODULE ECO HISTORY	B-MH-8150-0-6
1	ETCHED CIRCUIT BOARD	5011276
118	C1 THRU C10, C12 THRU C40, C42 THRU C51, C53 THRU C70, C72 THRU C80, C92 THRU C101, C103 THRU C118, C133 THRU C136	CAP .01uf 20% 100V DISC
5	C120 THRU C124	CAP 8.8uf 10% 35V
7	C126 THRU C132	CAP 82pf 5% 100V
7	C11, C41, C52, C71, C91, C102, C119	CAP .22uf 50V CERAMIC
7	R1 THRU R7	RES 100 OHM 5% 1/4W
7	R8 THRU R14	RES 120 OHM 5% 1/4W
3	R15, R16, R17	RES 330 OHM 5% 1/4W
3	R18, R19, R20	RES 680 OHM 5% 1/4W
8	R21 THRU R28	RES 1K 5% 1/4W
4	R29 THRU R32	RES 1.5K 5% 1/4W
7	Q1 THRU Q7	TRANSISTOR DEC 3009B
7	L1 THRU L7	INDUCTOR 100uh
7	E11, E41, E52, E71, E91, E102, E119	DELAY - 10 TAP 250ns 100 OHM
8	E19, E38, E50, E59, E82, E80, E99	IC DEC 74S00
9	E42, E55, E56, E57, E63 THRU E67	IC DEC 74HC1
1	E115	IC DEC 7402
8	E20, E51, E70, E101, E112, E118	IC DEC 74S04
2	E40, E90	IC DEC 74S10
8	E10, E30, E80, E86, E107, E108, E114, E118	IC DEC 74S11
1	E49	IC DEC 74H30
1	E54	IC DEC 74H40
2	E39, E89	IC DEC 74H50
8	E28, E91, E104, E105, E108, E113	IC DEC 74S64
8	E9, E29, E89, E79, E109, E117, E46, E81	IC DEC 74S74
2	E10, E103	IC DEC 7406
4	E92, E94, E96, E98	IC DEC 74157
14	E31, E33, E35, E37, E72, E74, E76, E78, E58, E82, E84, E86, E88, E97	IC DEC 74S157
3	E22, E24, E26	IC DEC 74174
18	E2, E4, E6, E13, E15, E17, E32, E34, E36, E73, E75, E77, E83, E85, E87, E43, E45, E47	IC DEC 74S174
5	E1, E3, E5, E7, E8	IC DEC 74298
4	E21, E23, E25, E27	IC DEC 8242
8	E14, E16, E44, E46, E93, E95	IC DEC 82S62
4	W1 THRU W4	INSULATED JUMPERS
1		HANDLE
12		EYELET
1	R33	RES 270 OHM 5% 1/4 W
1	R34	RES 560 OHM 5% 1/4 W

REF	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
OTY				
ETCH BOARD REV C				
DRN. K. Beasley	DATE 9-15-74			
CHGR. J. Regan	DATE 9-15-74			
END. J. Regan	DATE 9-15-74			
PRES. J. Regan	DATE 9-15-74			
PROD. J. Regan	DATE 9-15-74			
NEXT HIGHER ASSY B-DD-RH70-0				
EQUIPMENT CORPORATION WALTHAM MASSACHUSETTS				
digital				
TITLE MASSBUS DATA PATH (MDP)				
SIZE CODE DCS	NUMBER M8150-0-1	REV. D		
SCALE 1	1 OF 9	DBL.		

SEMICONDUCTOR CONVERSION CHART

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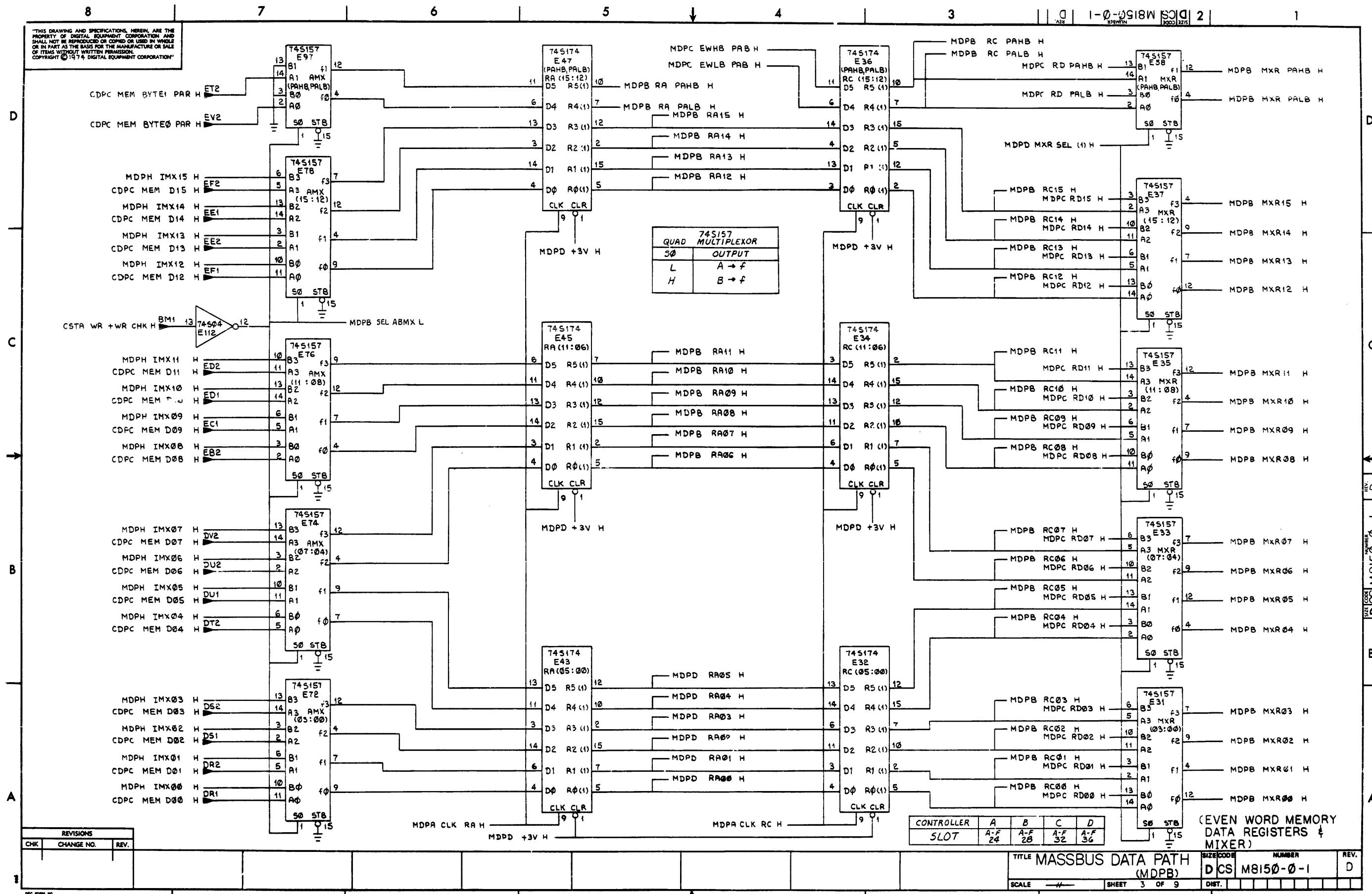
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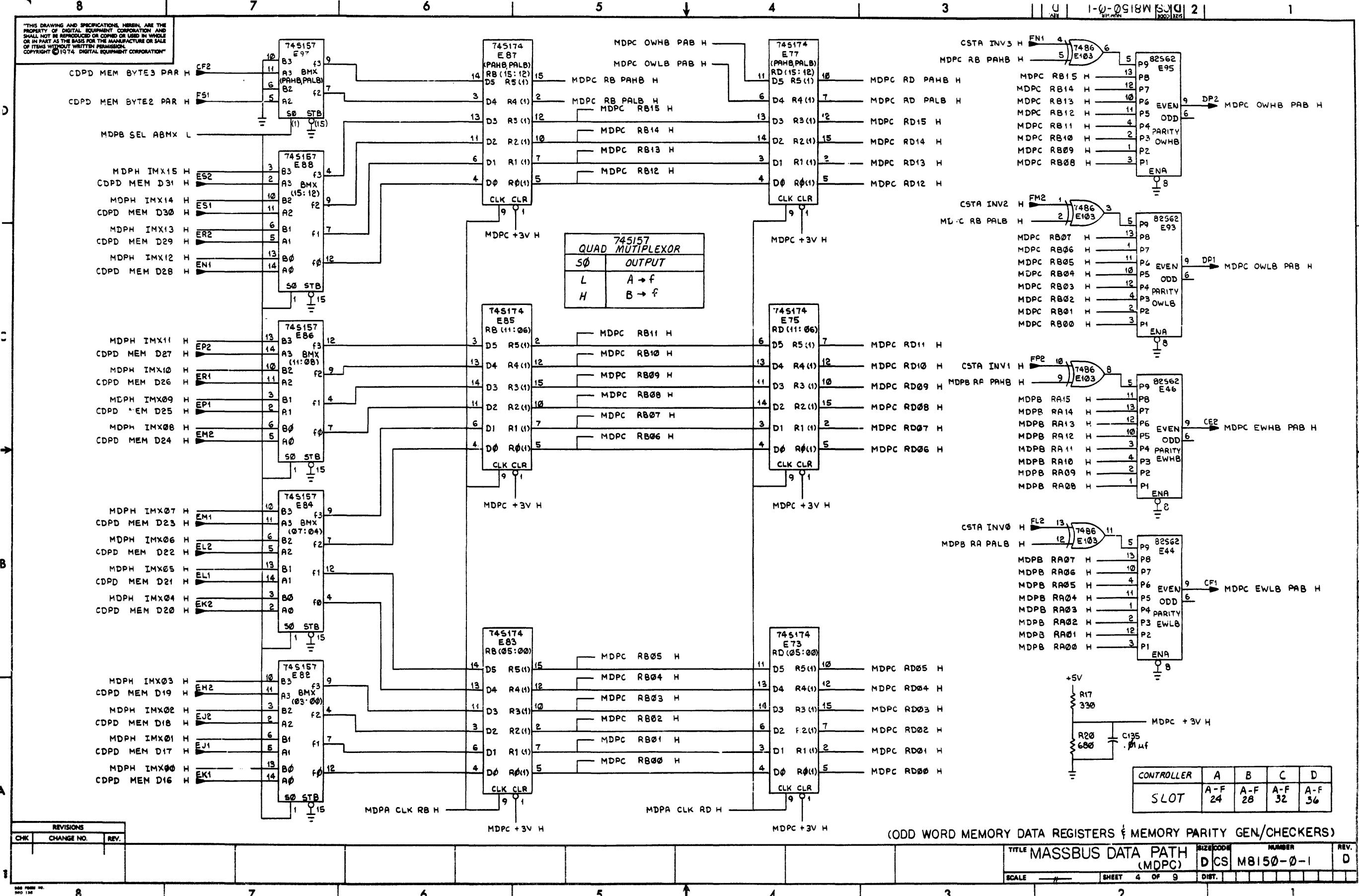
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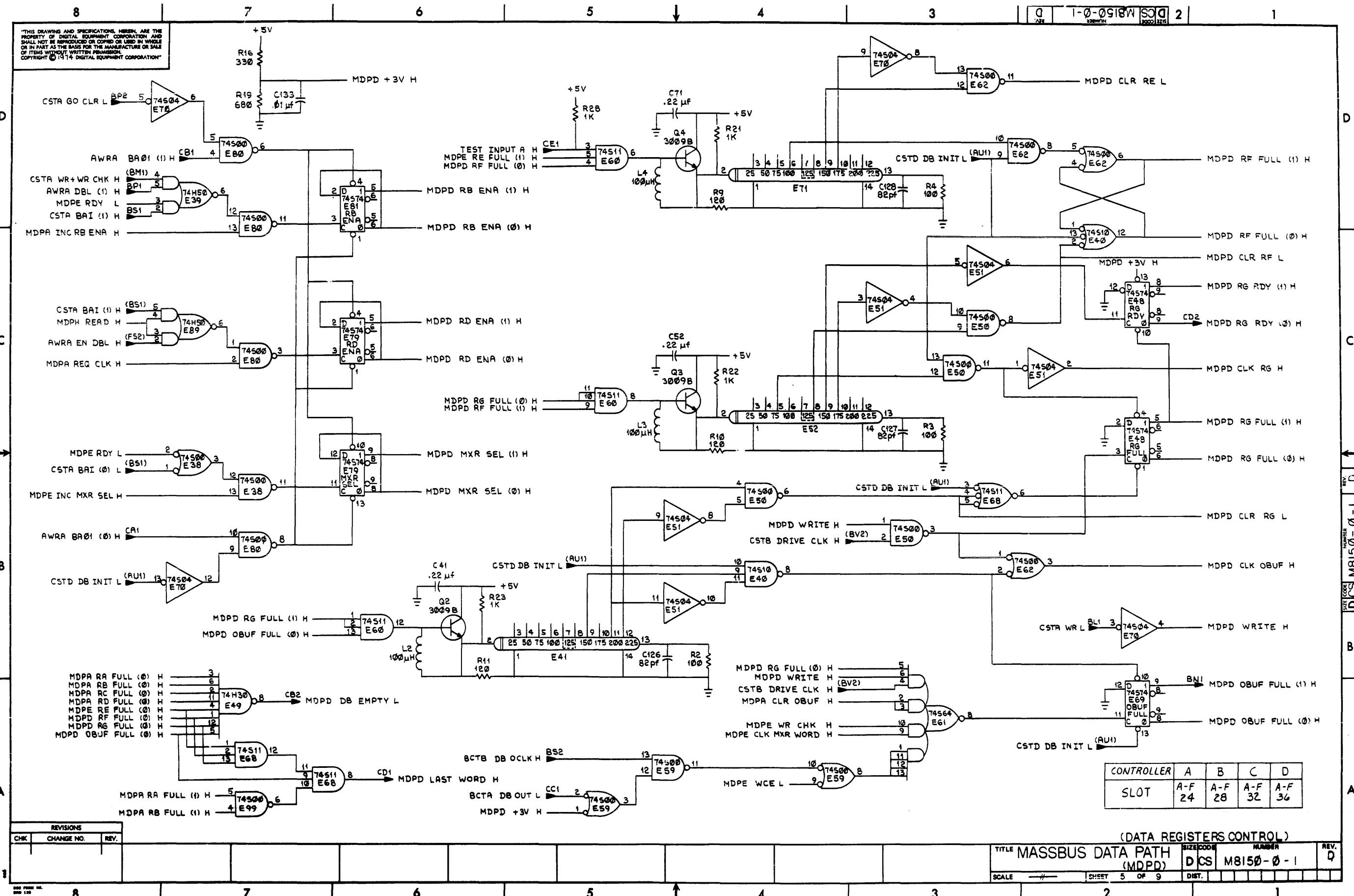
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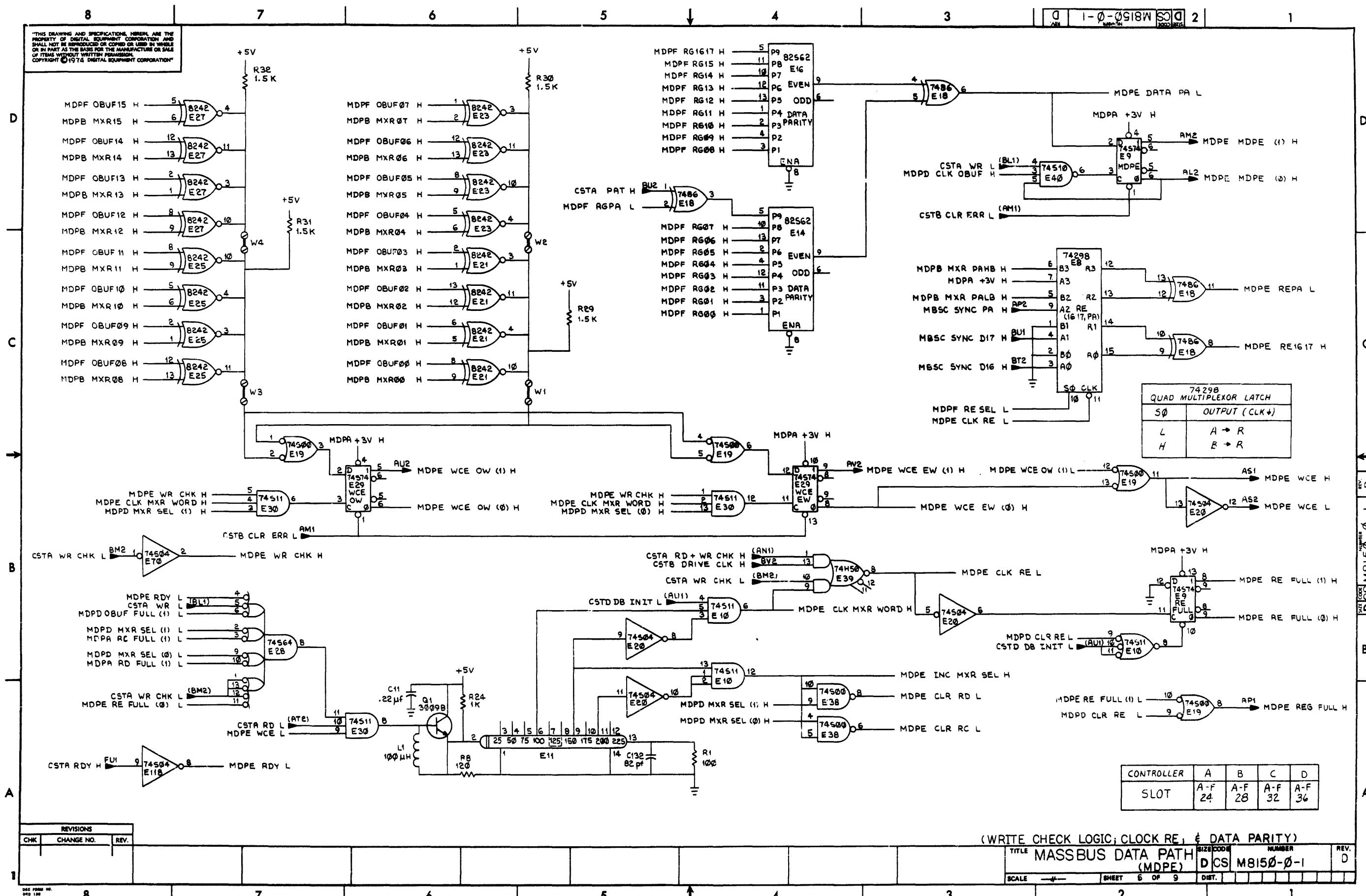
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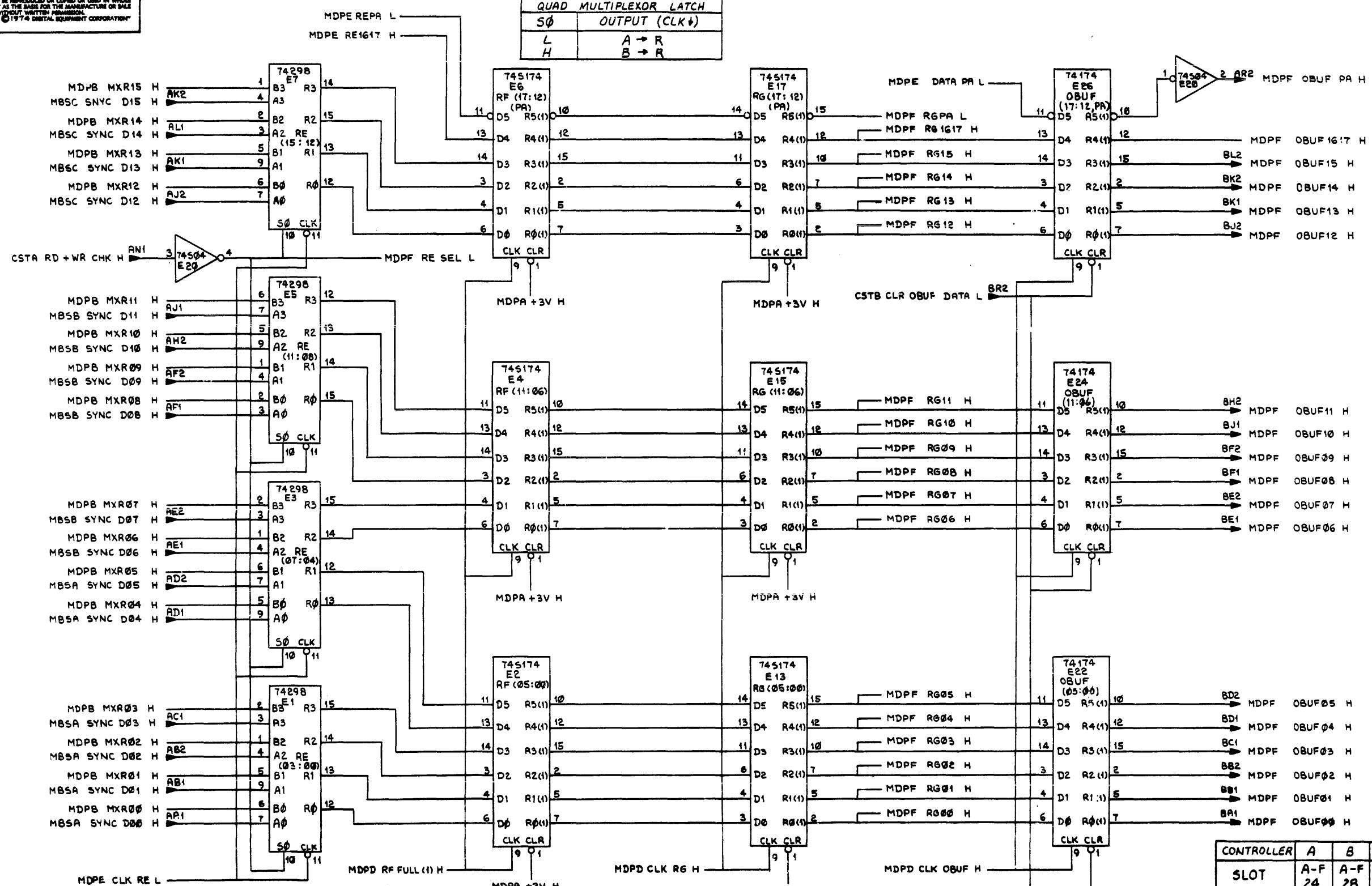








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CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

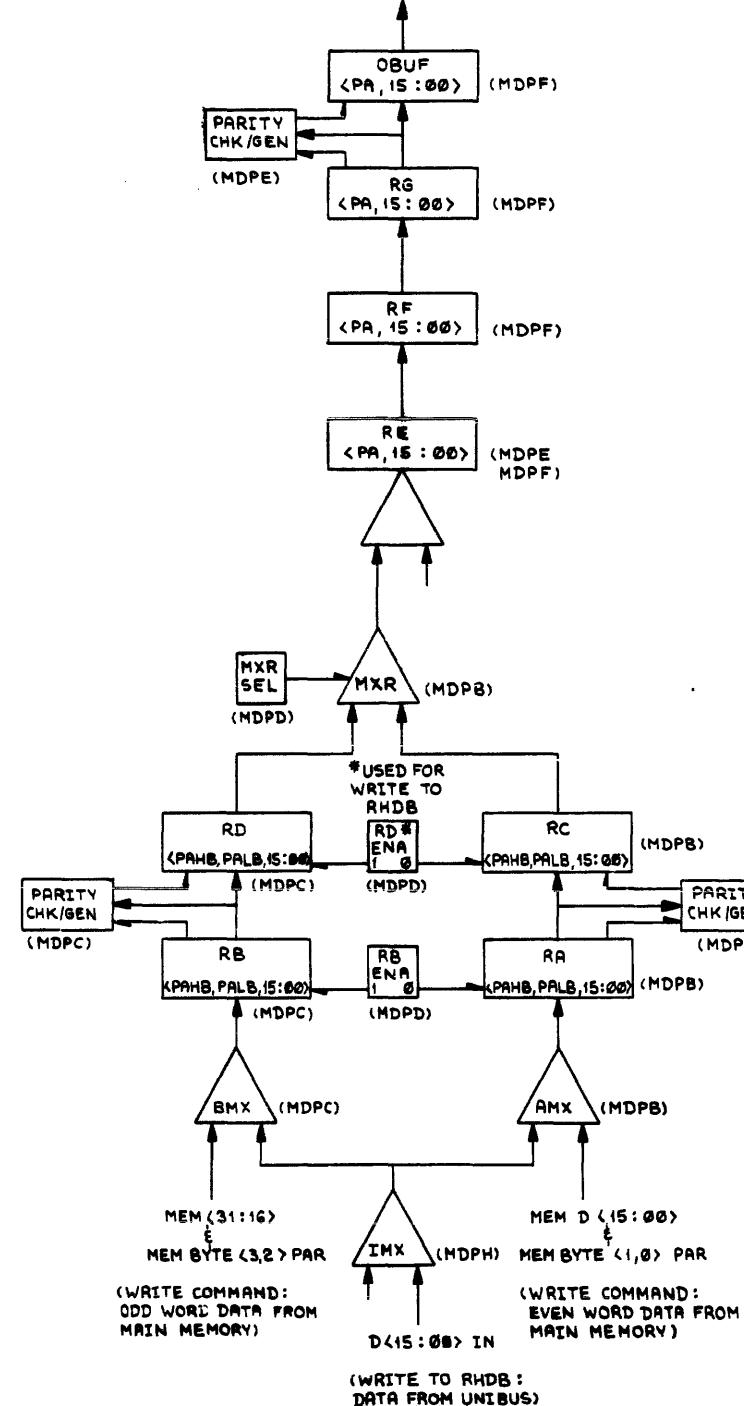
(DATA BUFFER REGISTERS)

TITLE		MASSBUS DATA PATH (MDPF)	SIZE CODE	NUMBER	REV.
SCALE		4	D C S	M 8150-0-1	D
SHEET		7 OF 9	DIST.		

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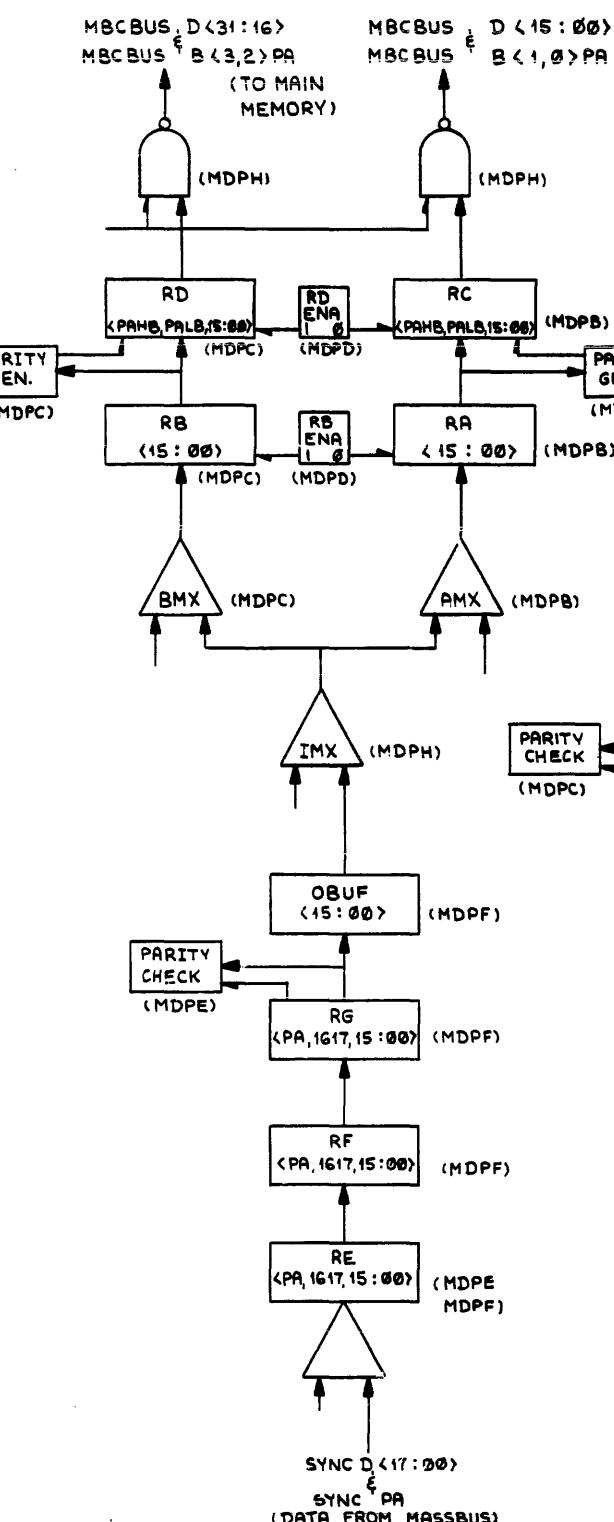
WRITE COMMAND
OR
READ-WRITE RHDB REGISTER

(READ FROM RHDB : TO UNIBUS)
(WRITE COMMAND : TO MASSBUS)

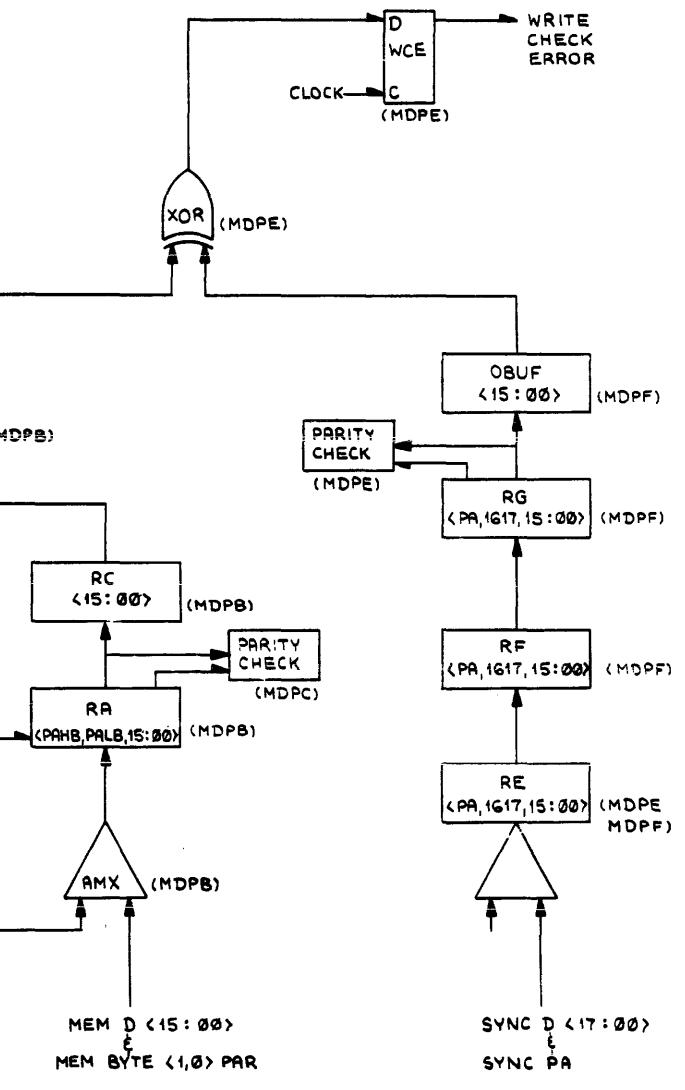


READ COMMAND

MBCBUS, D (31:16)
MBCBUS, B (3,2) PAR
(TO MAIN MEMORY)
MBCBUS, D (15:00)
MBCBUS, B (1,0) PAR



WRITE CHECK COMMAND



CONTROLLER	A	B	C	D
SLOT	A-F 24	A-F 28	A-F 32	A-F 36

(DATA PATH BLOCK DIAGRAM)

TITLE MASSBUS DATA PATH (MDPJ)
DRAWN BY DCS
NUMBER M8150-0-1
REV. 0

REVISIONS	
CHK	CHANGE NO.
	REV.

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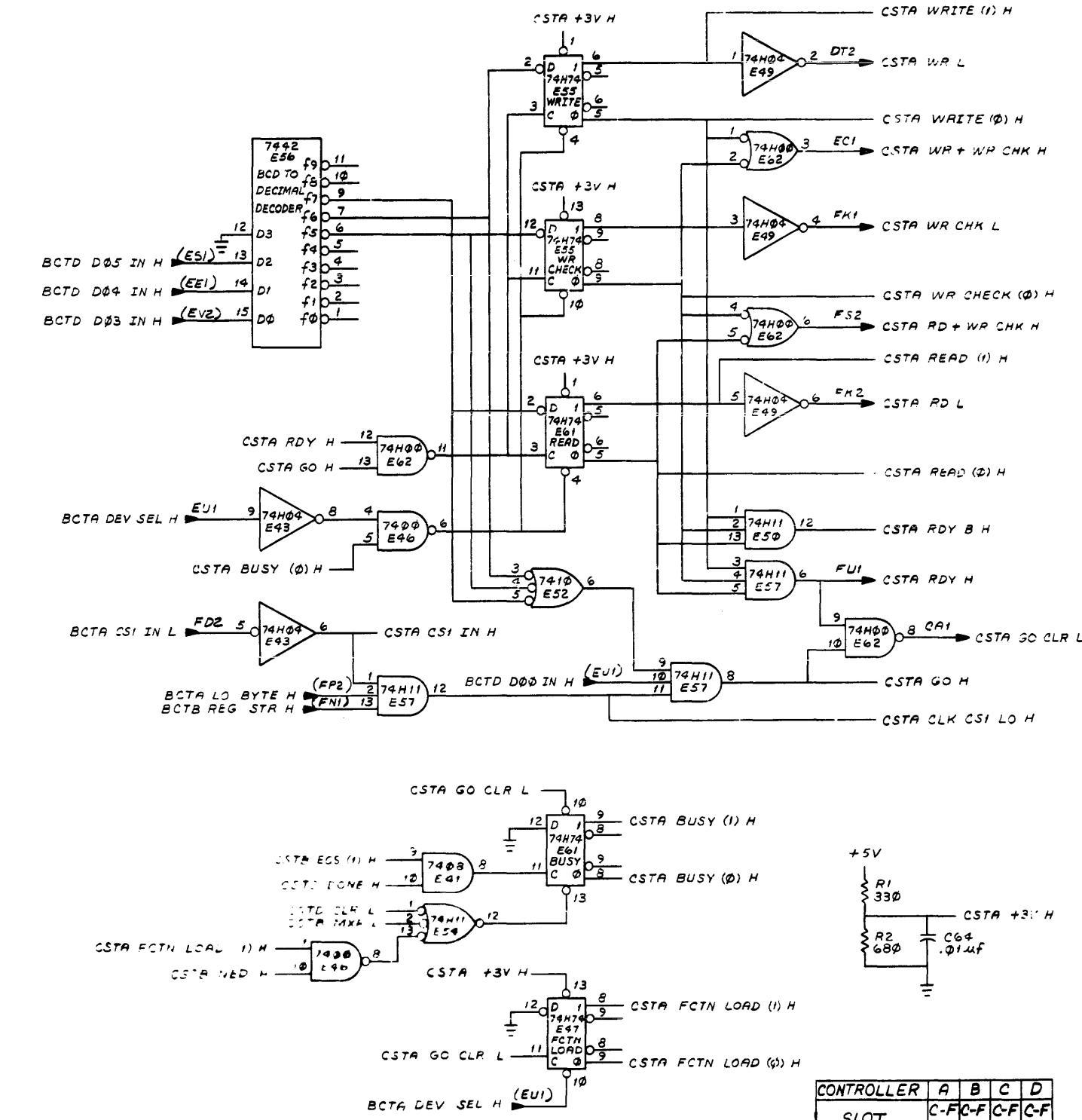
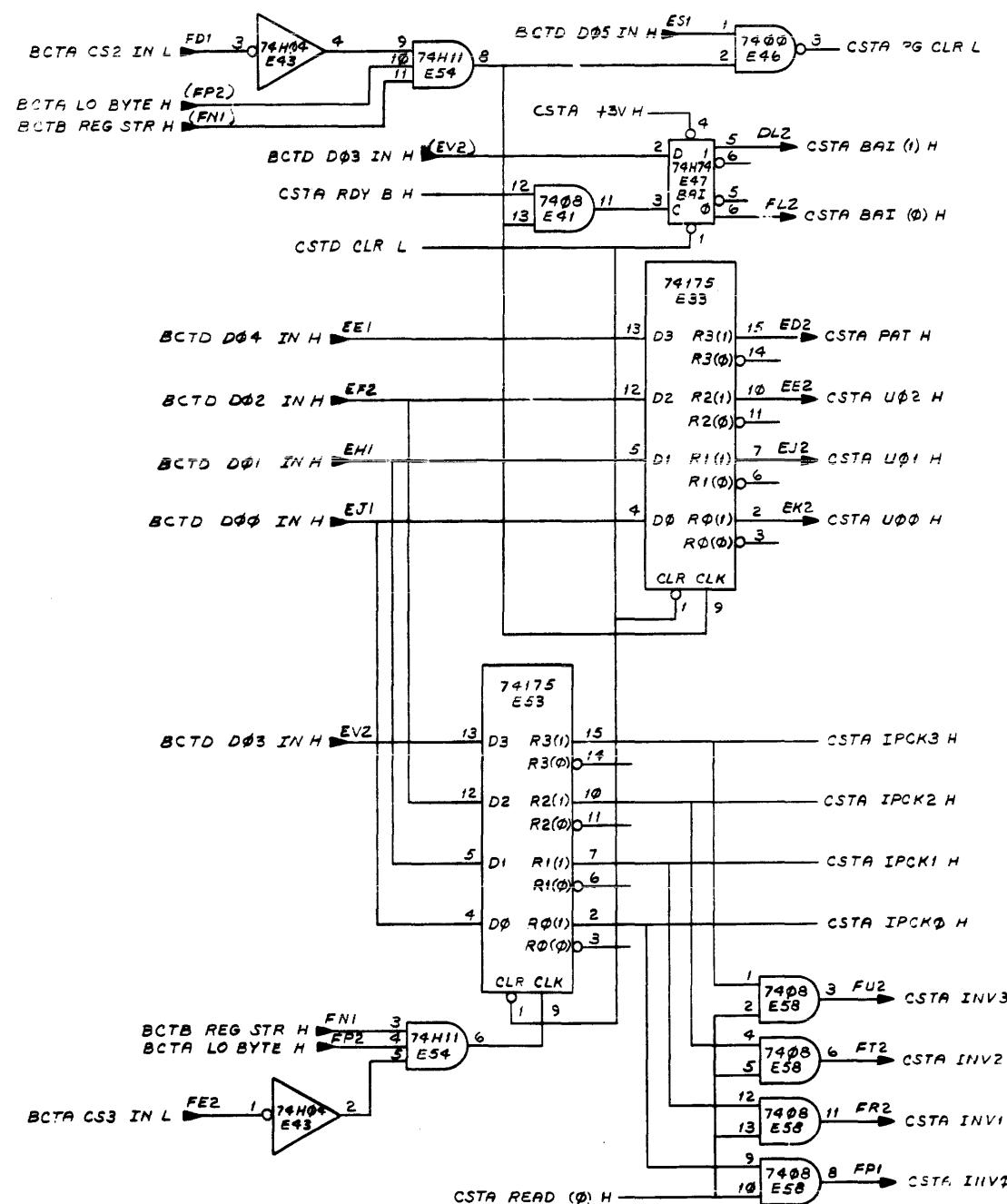
1

REF ID: DCS M8150-0-1

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A

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CSI, CS2, & CS3 CNTL & STATUS BITS; FUNCTION SELECT

CONTROLLER	A	B	C	D
SLOT	C-F	C-F	C-F	C-F
	25	29	39	37

REVISIONS

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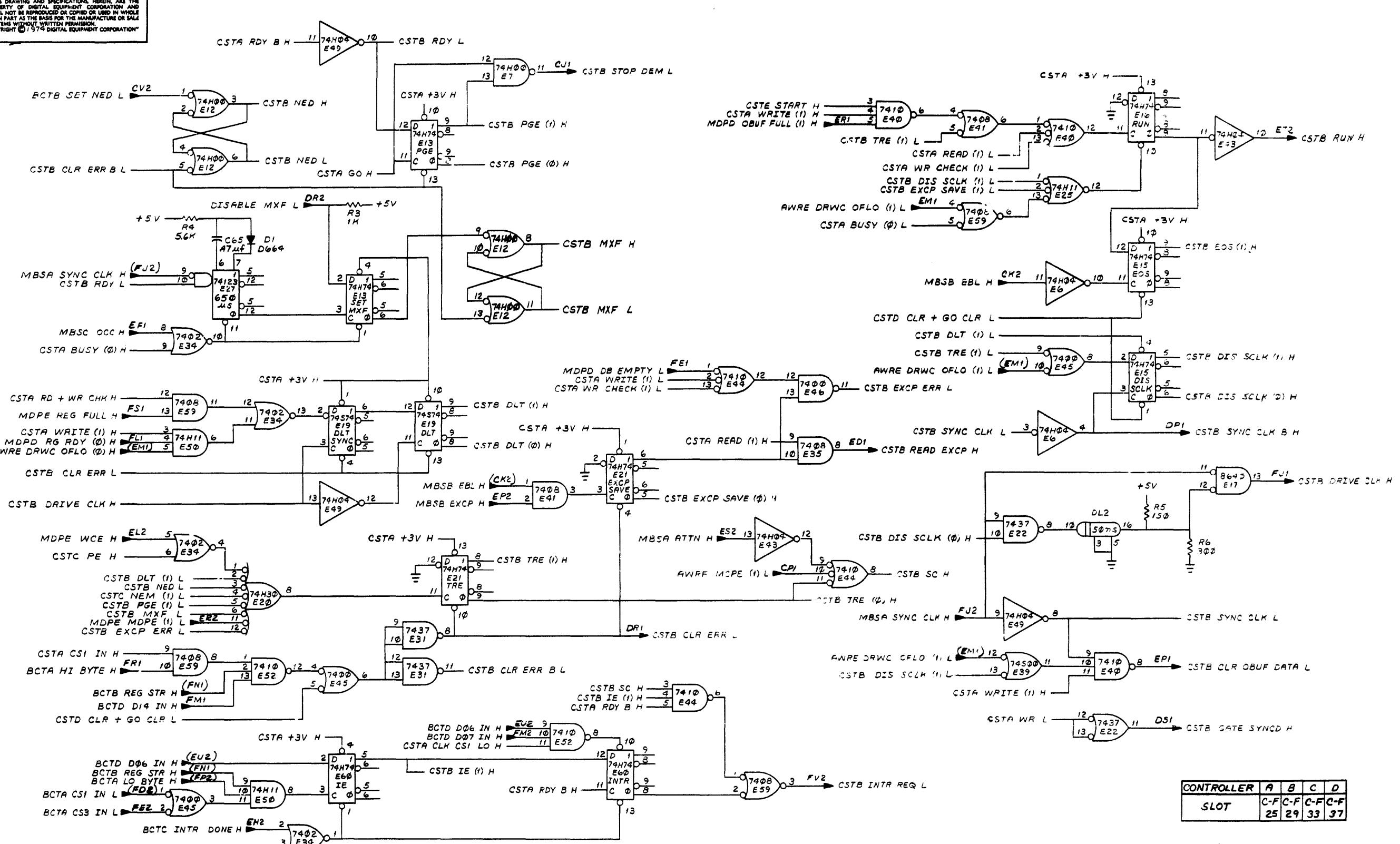
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ERRORS; IE; INTR REQ; & MASSBUS CONTROL

REVISIONS

CHK CHANGE NO. REV.

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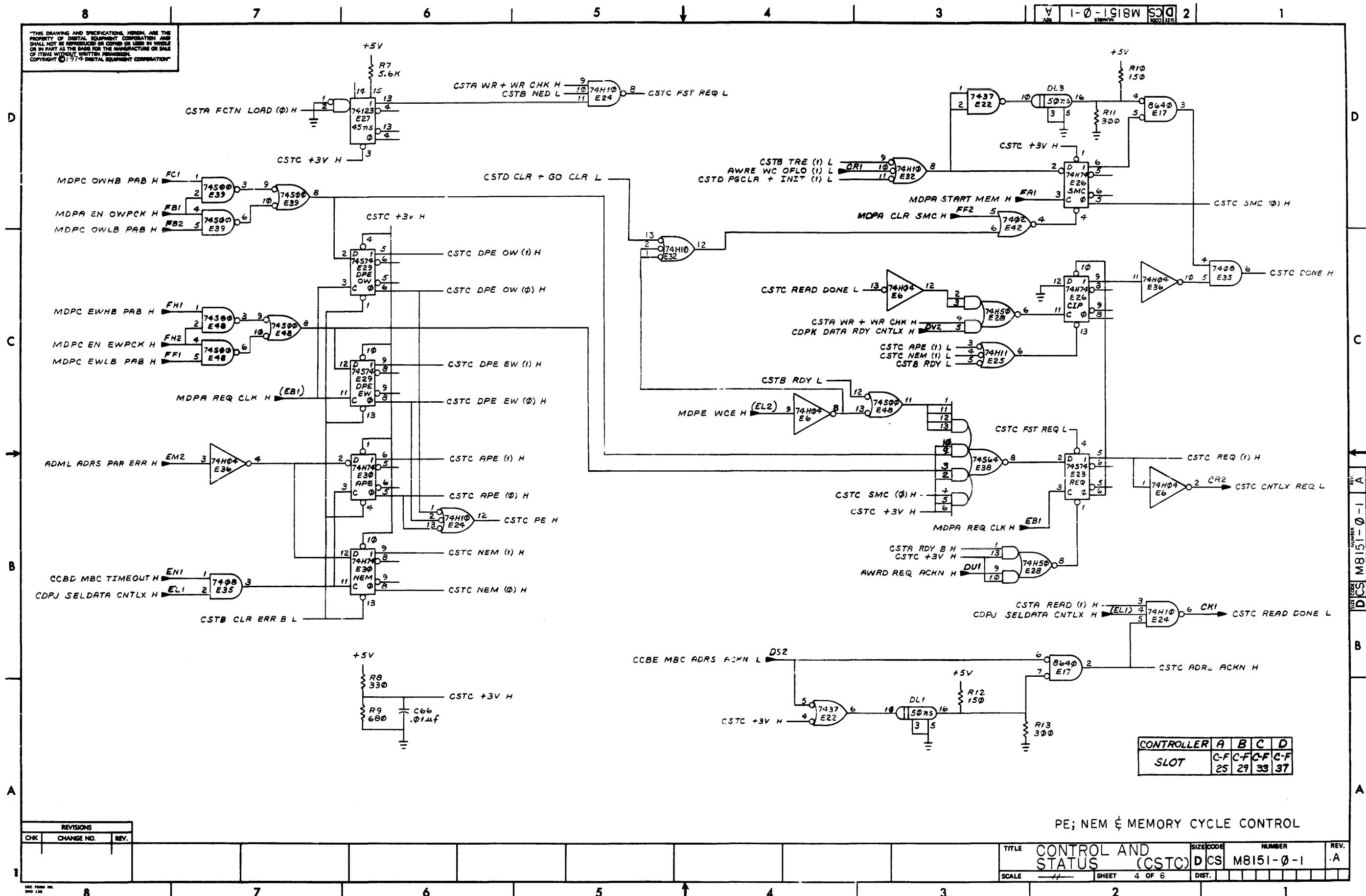
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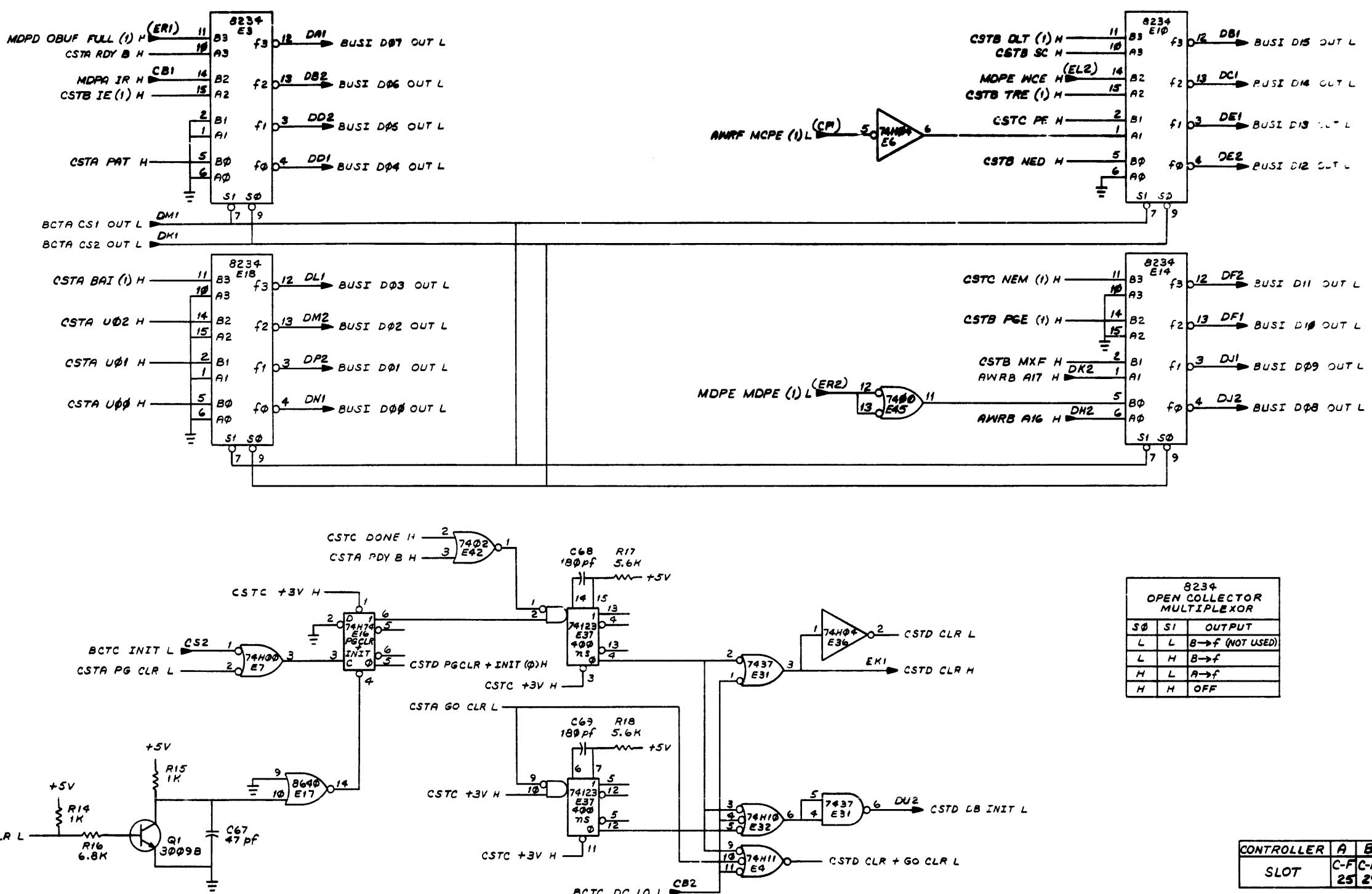
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BUSI MUXS < CS1 & CS2 REGS. > & CLEAR LOGIC

REVISIONS

CHK. CHANGE NO. REV.

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DEQ FORM NO. 100-100

DRAFT

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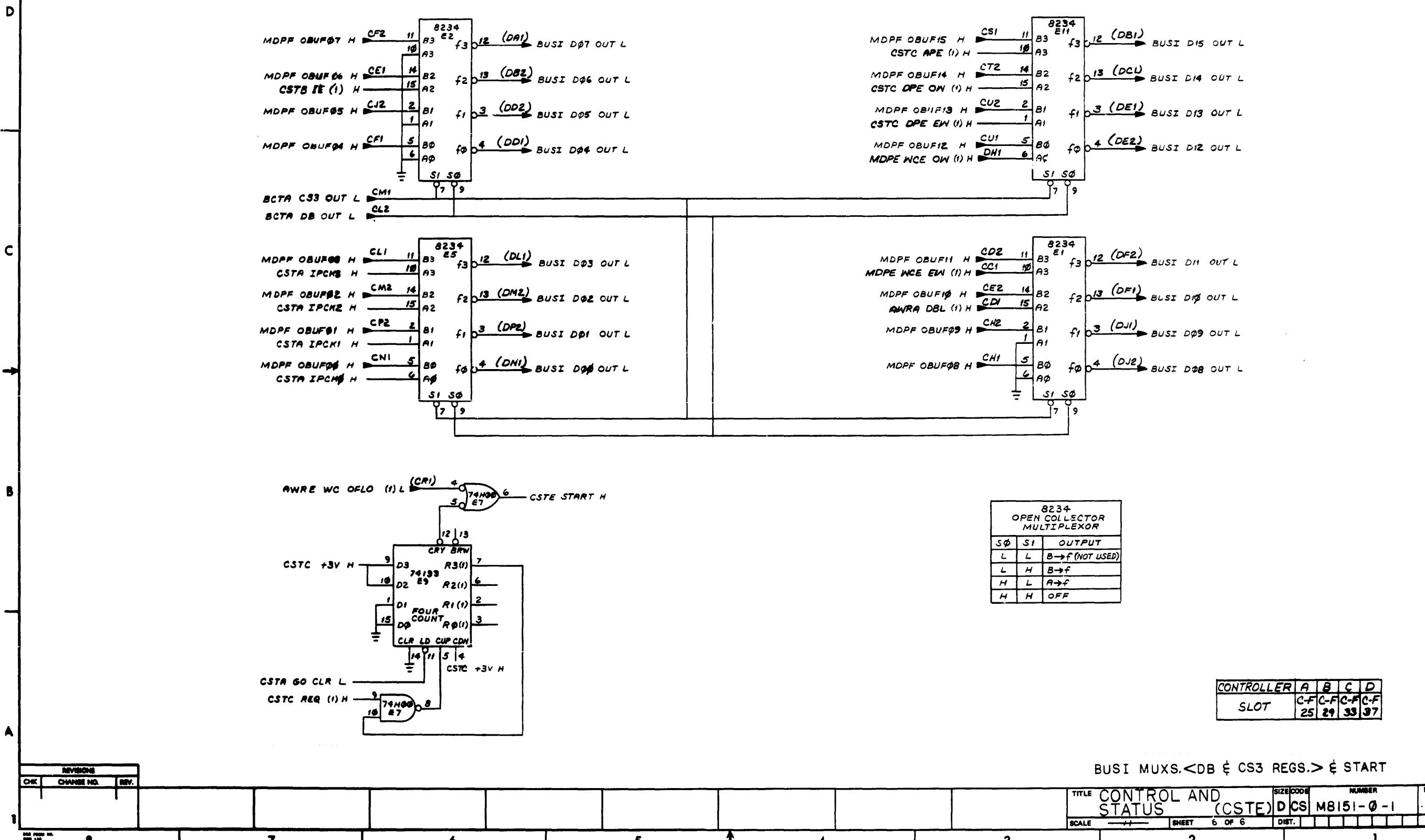
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1

DEQ FORM NO. 100-100

DRAFT</div

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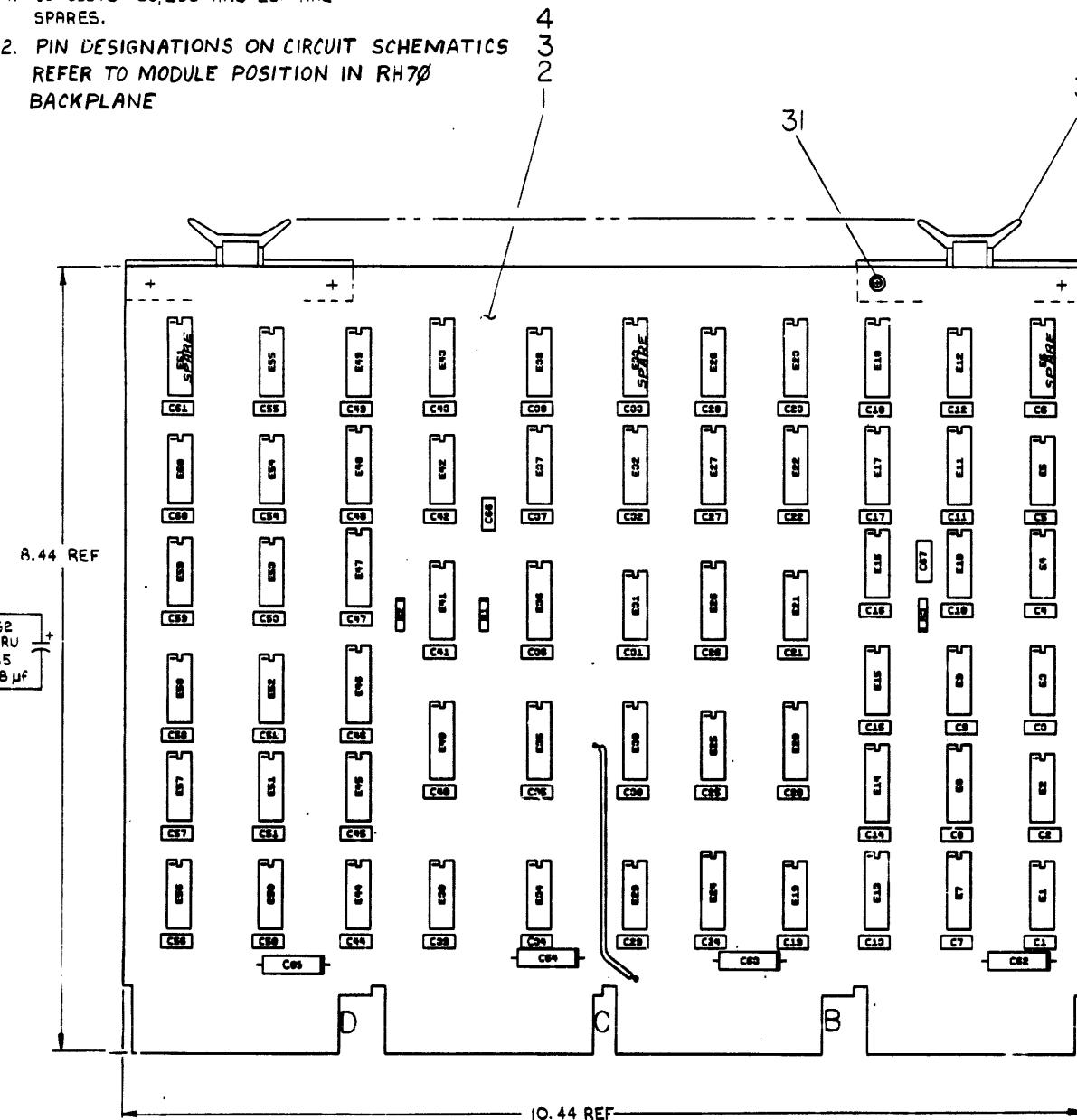


NOTES:

1. IC SLOTS E6, E33 AND E61 ARE SPARES.
2. PIN DESIGNATIONS ON CIRCUIT SCHEMATICS REFER TO MODULE POSITION IN RH70 BACKPLANE

PIN NOMENCLATURE

MODULE PINS	BACKPLANE PINS
A	C
B	D
C	E
D	F

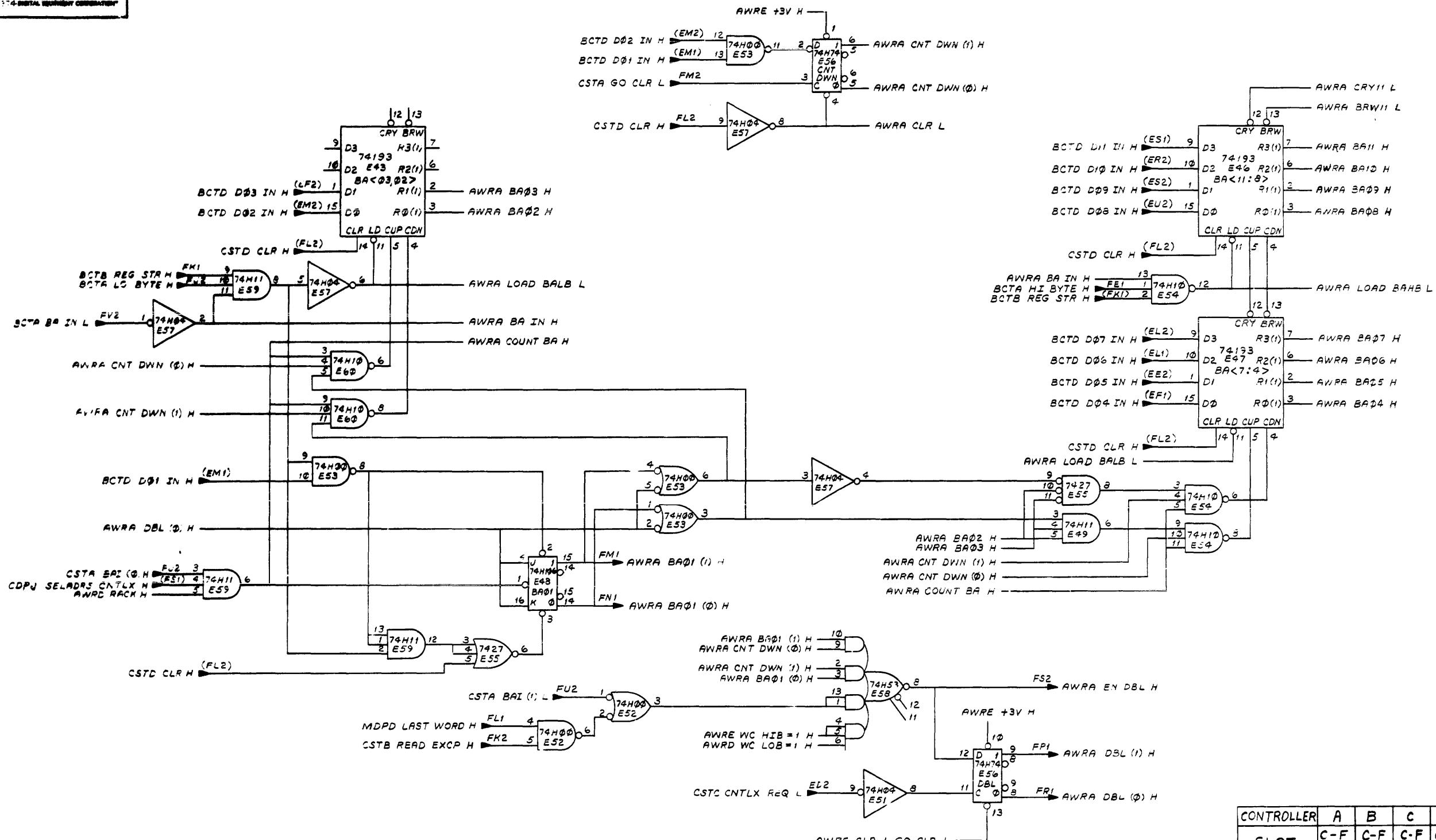


IC DEC 8234	8	16
IC DEC 74193	8	16
IC DEC 74H10G	15	5
IC DEC 74157	8	16
IC DEC 74191	8	16
IC TYPE	GND	+5V
GND AND BY ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

FIRST USED ON OPTION MODEL		PARTS LIST	
RH70		ETCH BOARD REV	A
12/2/74	3/2/74	DRN	DATE 12/2/74
P. SCHNORR	1/2/75	CHNL	DATE 1/2/75
2/2/75	1/2/75	ENG	DATE 1/2/75
MB152-00001	A	PRINTNG	DATE 1/2/75
CHN	REV	PROT	DATE 1/2/75
CHANGE NO.		NEXT HIGHER ASSY	B-00-RH70-0
REVISIONS		SIZE CODE	DICS
DEC NO.	EIA NO.	NUMBER	M8152-0-1
DEC NO.	EIA NO.	REV.	A
SEMICONDUCTOR CONVERSION CHART			
SHEET 1 OF 7 DIST.			

ADDR. & WORD COUNT REGS. (AWR)

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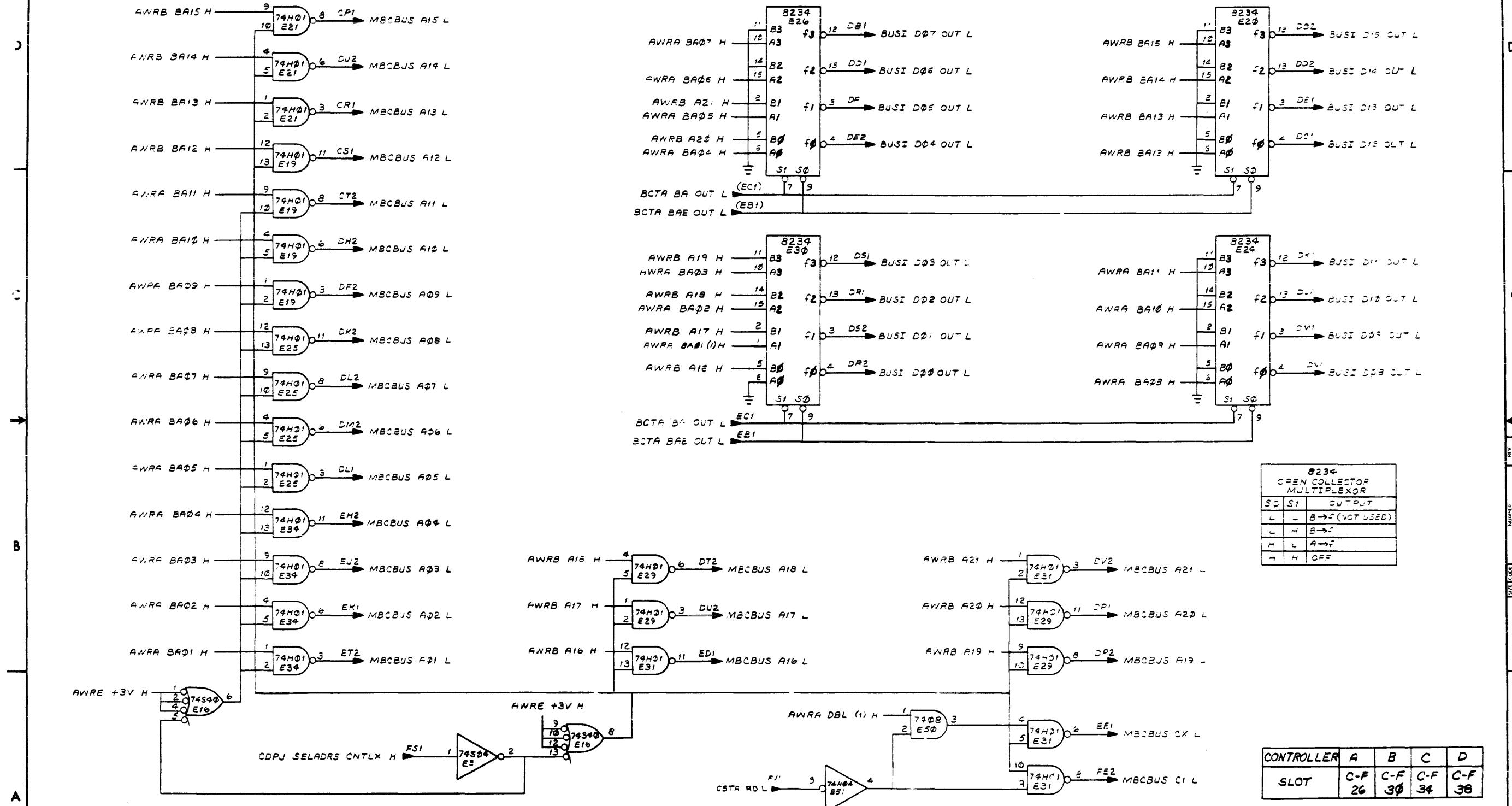


CONTROLLER	A	B	C	D
SLOT	C-F 26	C-F 30	C-F 34	C-F 38

(BUS ADDR REG. <11:01>)

TITLE	ADDR. & WORD COUNT REGS. (AWRA)	SIZE CODE	NUMBER	REV.
		D C S	M 8152-0-1	A
SCALE	11	SHEET 2 OF 7	DIST.	

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(BUSI MUXS. < BA & BAE REGS. > & ADDRESS DRIVERS)

REVISIONS

CHK	CHANGE NO.	REV.
1		

8

7

6

5

4

3

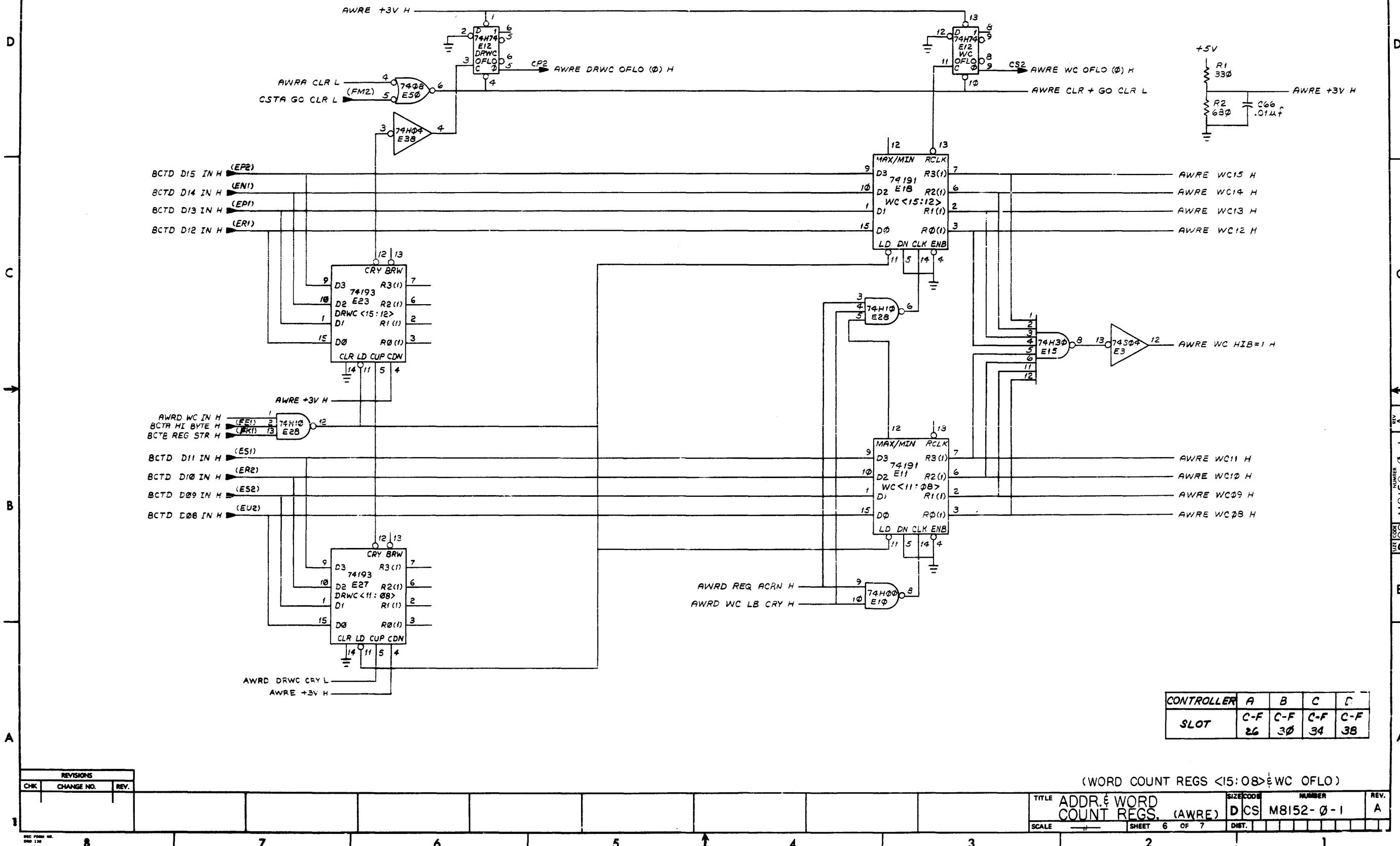
2

1

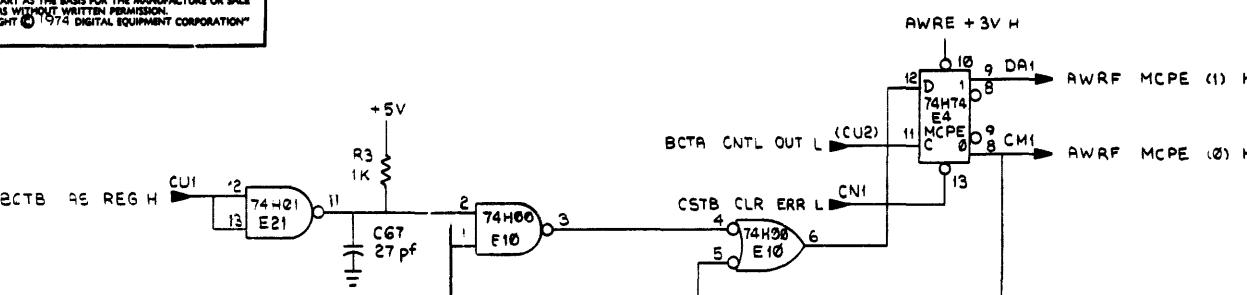
DEC FORM NO. 100-130
REV. A

SCALE	11	SHEET 4 OF 7	DET.
SIZE	CODE	NUMBER	REV.
DCS	M8152-0-1		A

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8234
OPEN COLLECTOR
MULTIPLEXOR

MESC	C15	IN H	CL1	2	74180
MESC	C14	IN H	CK2	1	E1
MESC	C13	IN H	CK1	13	D6
MESC	C12	IN H	CJ2	12	D5
MBSB	C11	IN H	CJ1	11	SEVEN
MBSB	C10	IN H	CH2	10	D4
MBSB	C09	IN H	CF2	9	D3
MBSB	C08	IN H	CF1	8	ODD

AWRD WC07 H	11	8234
MBSB C07 IN H	10	E14
AWRD WC06 H	14	
MBSB C06 IN H	15	
AWRD WC05 H	2	
MBSA C05 IN H	1	
AWRD WC04 H	5	
MBSB C04 IN H	6	

AWRE	WC15	H	11	8234							
MBSC	C15	IN	H	B3	E13	f30	12 (DB2)	BUSI	D15	OUT	L
				(CL1)		10					
					A3						
AWRE	WC14	H	14								
MBSC	C14	IN	H	B2		f20	13 (DD2)	BUSI	D14	OUT	L
				(CK2)	15						
					A2						
AWRE	WC13	H	2								
MBSC	C13	IN	H	B1		f10	3 (DE1)	BUSI	D13	OUT	L
				(CK1)	1						
					A1						
AWRE	WC12	H	5								
MBSC	C12	IN	H	B0		f00	4 (DC1)	BUSI	D12	OUT	L
				(CK2)	6						
					A0						

MBSB	C07	IN	H	CE2	2	74180
MBSB	C06	IN	H	CE1	1	E2
MBSA	C05	IN	H	CD2	13	D7
MBSA	C04	IN	H	CD1	12	D6
MBSA	C03	IN	H	CCI	11	D5
MBSA	C02	IN	H	CB2	10	Σ EVEN
MBSA	C01	IN	H	CB1	9	5
MBSA	C00	IN	H	CA1	8	Σ ODD
						6
						EVEN ODD

AWRE	WC11	H	11	8234							
MBSB	C11	IN	H	(CU1)	10	E7	12 (DK1)	BUSI	D11	OUT	L
						A8					
AWRE	WC10	H	14								
MBSB	C10	IN	H	(CH2)	15	B2	13 (DJ1)	BUSI	D10	OUT	L
						A2					
AWRE	WC09	H	2								
MBSB	C09	IN	H	(CF2)	1	B1	3 (DM1)	BUSI	D09	OUT	L
						A1					
AWRE	WC08	H	5								
MBSB	C08	IN	H	(CF1)	6	B8	4 (DN1)	BUSI	D08	OUT	L
						A8					
								51	50		
								7	9		

74180 TRUTH TABLE			
INPUTS		OUTPUTS	
{ OF i's AT D0 - D7	EVEN	ODD	{ EVEN
EVEN	L	H	L
ODD	L	H	H
EVEN	H	L	H
ODD	H	L	L

CONTROLLER	A	B	C	D
SLOT	C-F 26	C-F 30	C-F 34	C-F 38

REVISIONS

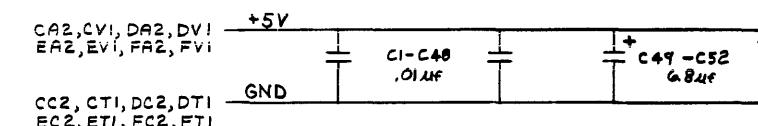
(BUSI MUXS. <WC & REMOTE REGS. & MCPE>)

TITLE		ADDR. & WORD COUNT REGS. (AWRF)		SIZE	CODE	NUMBER		REV.
		D	CS	M8152- Ø-1				A
SCALE	#	SHEET 7 OF 7		DIST.				

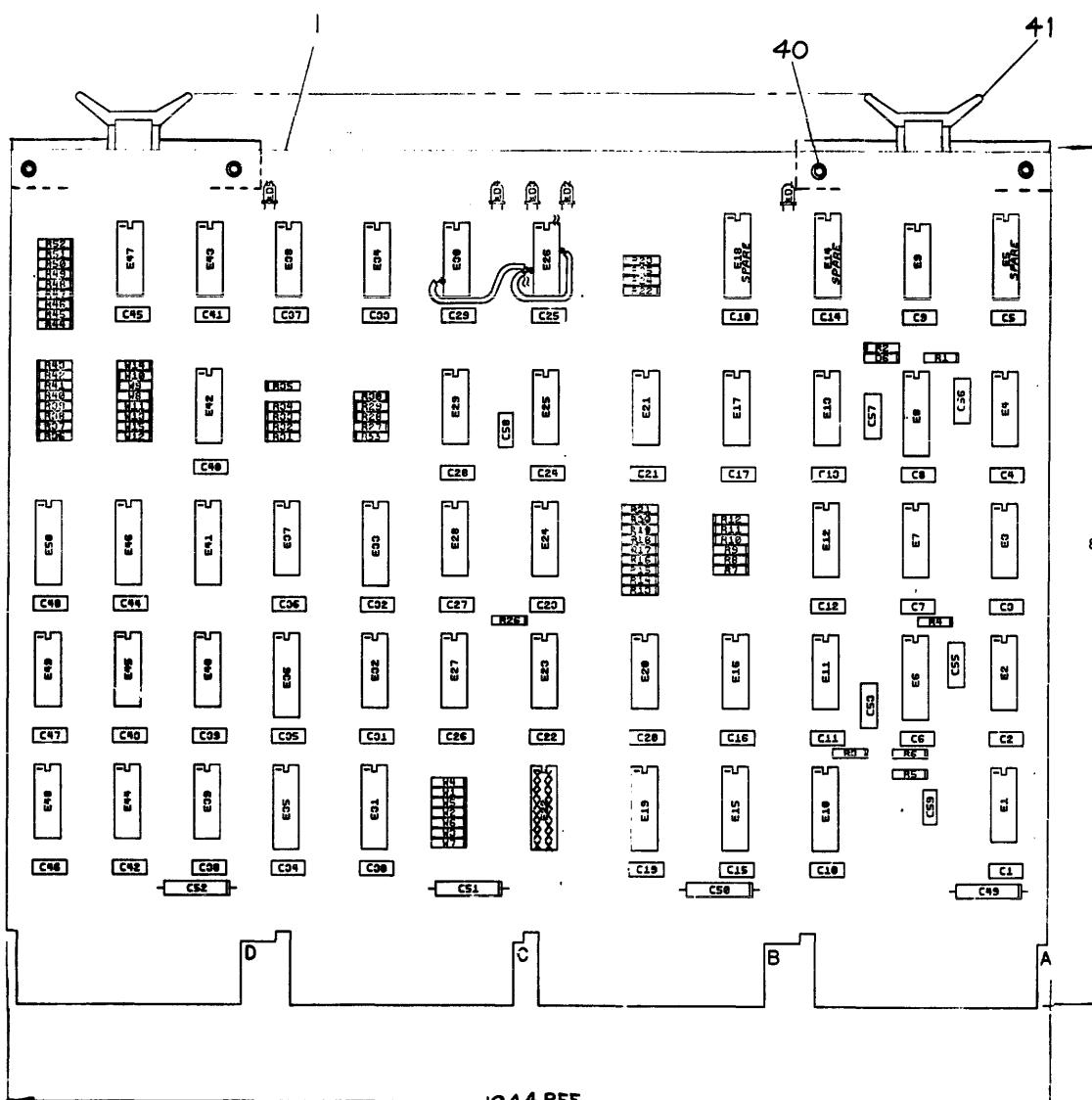
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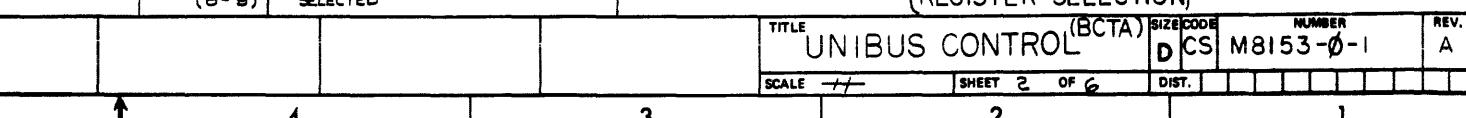
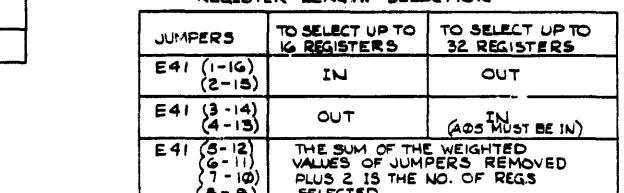
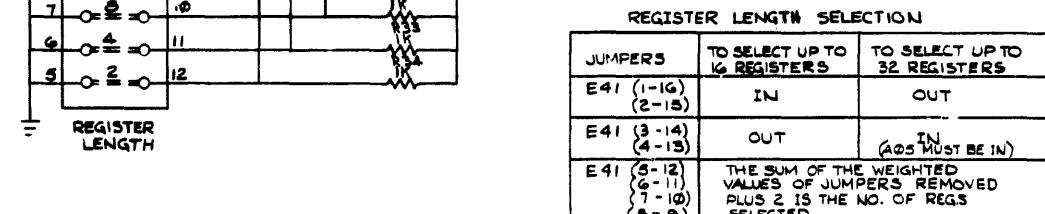
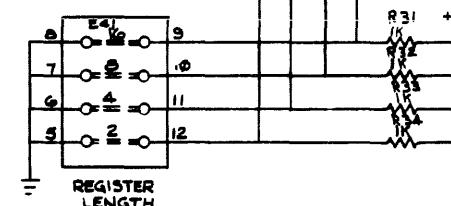
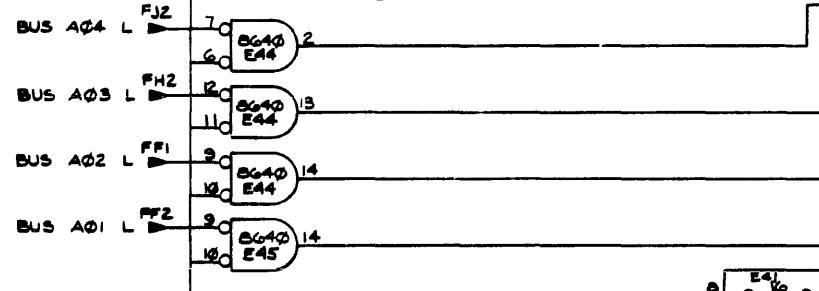
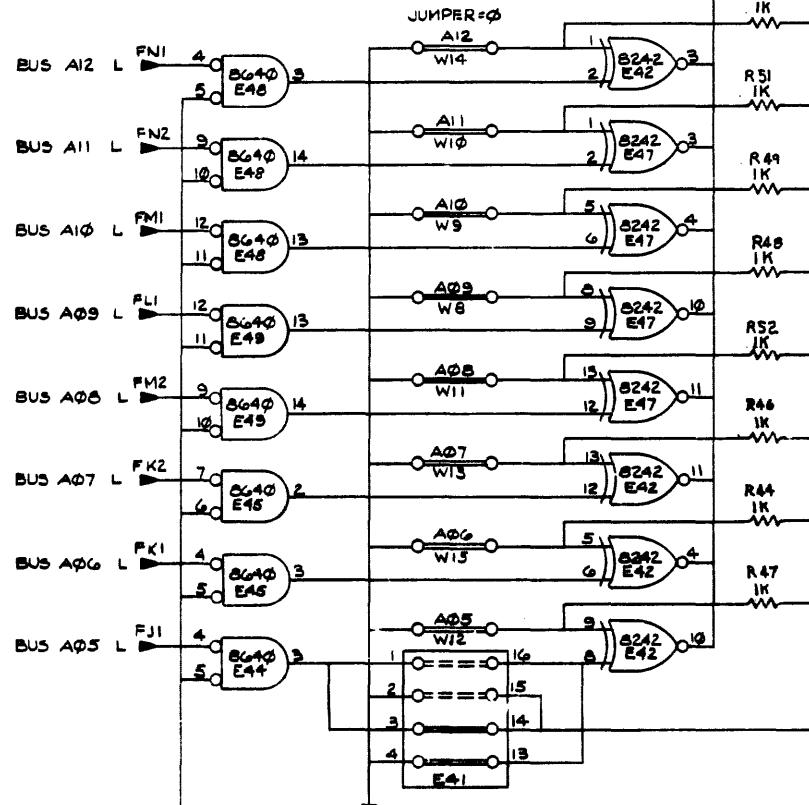
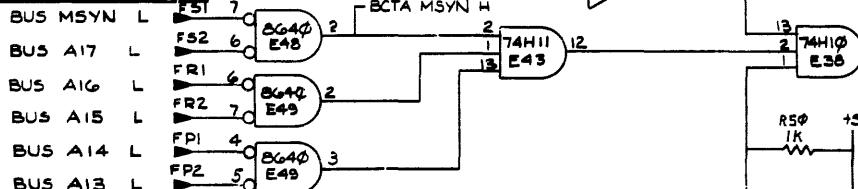
NOTES:

1. IC SLOTS E5, E14, AND E18 ARE SPARES.
2. PIN DESIGNATIONS ON CIRCUIT SCHEMATIC REFER TO MODULE POSITION IN RH70 BACKPLANE.



PIN NOMENCLATURE	
MODULE PINS	BACKPLANE PINS
A	C
B	D
C	E
D	F





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BCTA LOCAL REG H

7402

E1

4

5

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8

BCTA ODD BYTEL

7402

E1

2

3

4

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6

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8

BCTA REM ENA L

7402

E1

6

7

8

CSTB STOP DEM L

74102

E12

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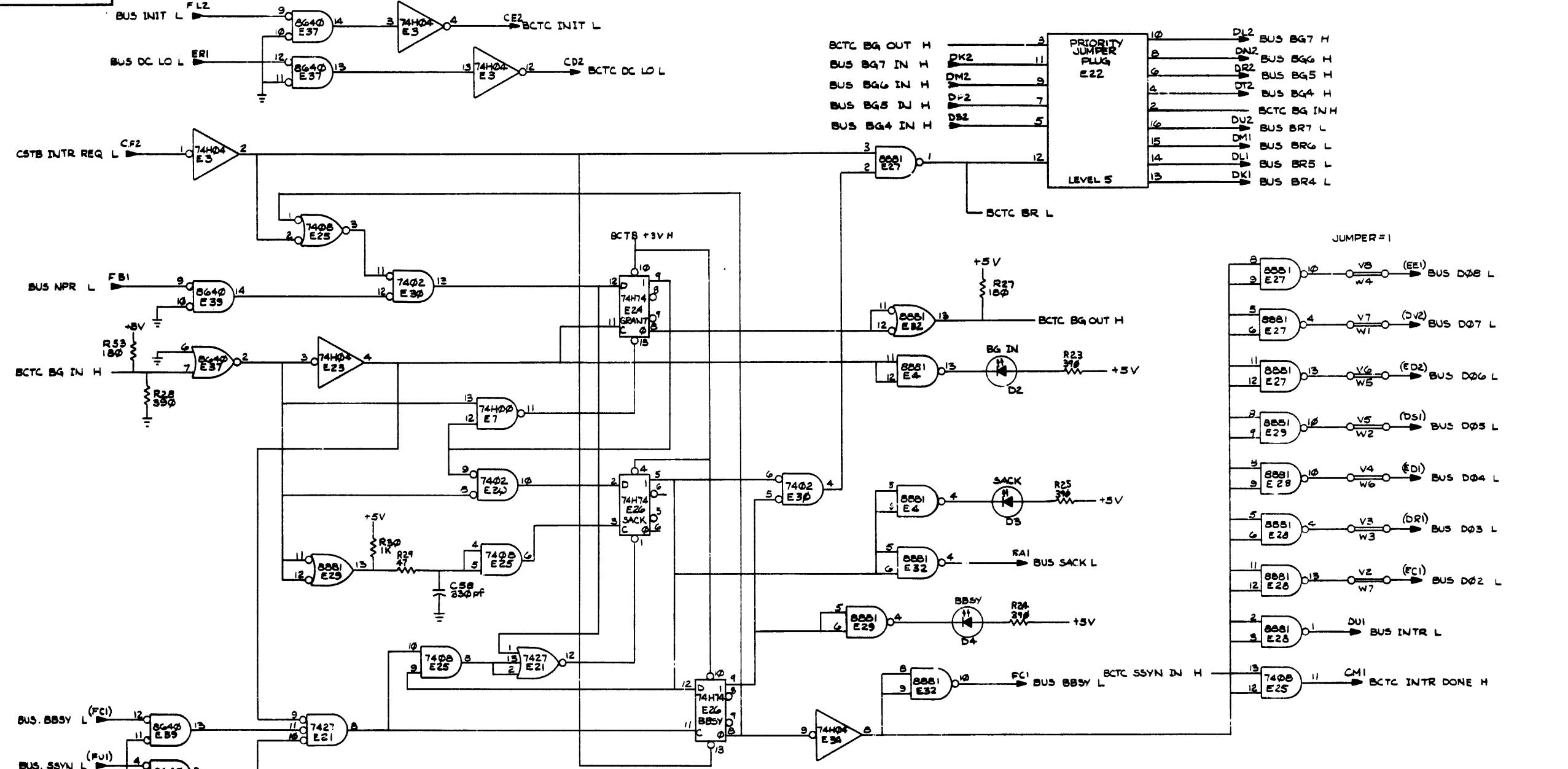
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CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

(UNIBUS INTERRUPT LOGIC)

TITLE		(BCTC)	SIZE	CODE	NUMBER	REV.
UNIBUS CONTROL			D	CS	M8153-Ø-1	A
SCALE	1/4	SHEET	4	OF	6	DIST.

8

7

6

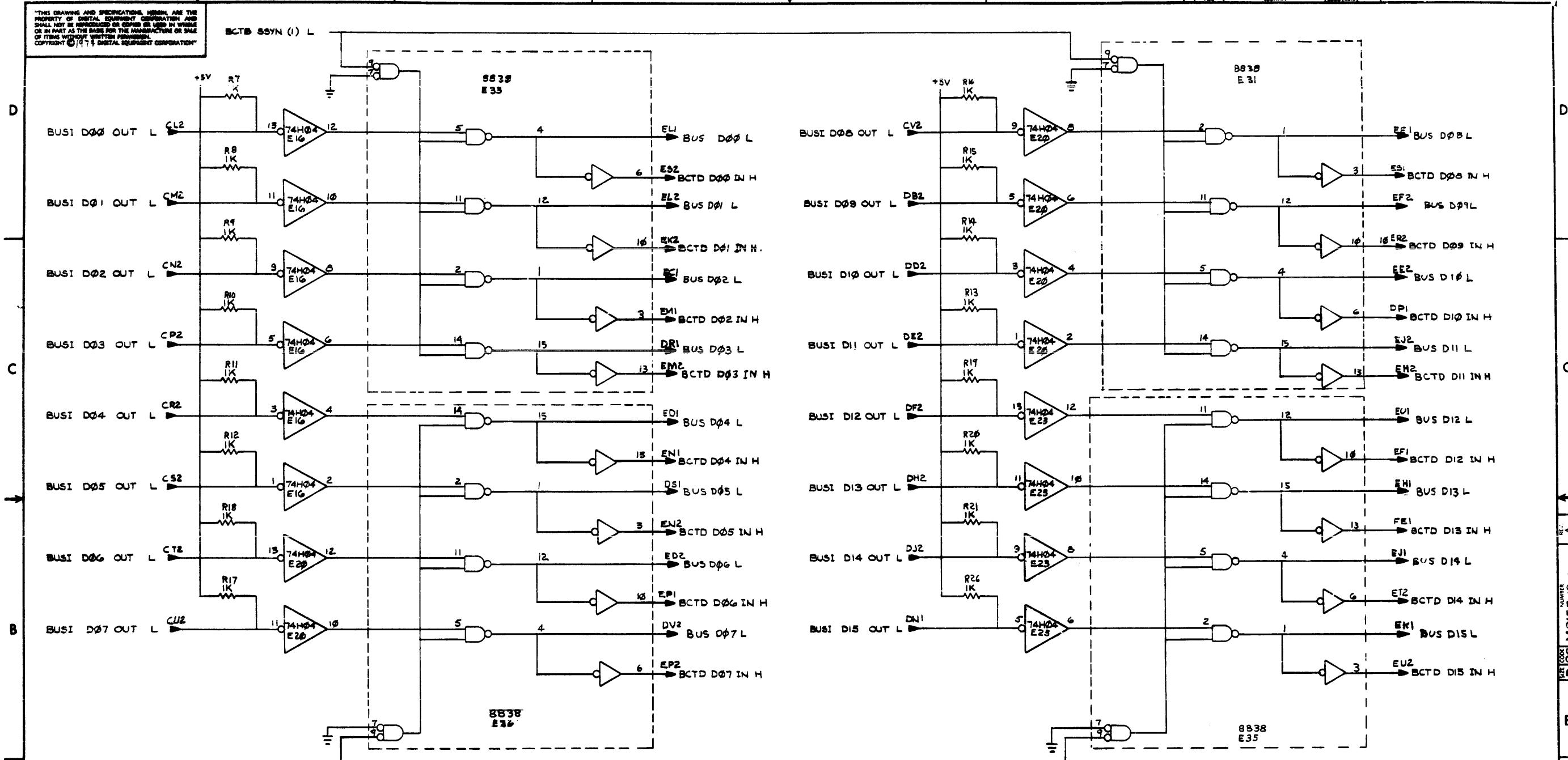
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2

1



CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

REVISIONS		
CHK	CHANGE NO.	REV.
1		

DOC FORM NO. 5010-104

REV. C

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1

(UNIBUS DATA TRANSCEIVERS)

TITLE UNIBUS CONTROL (BCTD)

SIZECODE DCS NUMBER M8153-0-1

SCALE # SHEET 5 OF 6 DIST.

1

1

NOTES:
 1. THE RHBAE & RHCS3 REGISTERS
 WILL BE SELECTED AS THE LAST
 TWO REGISTERS IN THE REGISTER
 SET. THE JUMPERS ON BCTA SELECT
 THE DESIRED NUMBER OF REGISTERS
 IN THE SET. WHEN RHBAE OR RHCS3
 IS SELECTED THE MASSBUS REGISTER
 SELECTION WILL BE DISABLED.

OCTAL ADDR	REGISTER SELECT PROM - 23040AI (822B)							
	M7	M6	M5	M4	M3	M2	M1	M0
00	L	L	L	L	L	L	L	L
01	H	L	H	L	L	L	H	H
02	H	H	H	L	L	L	L	L
03	H	H	L	L	L	H	L	H
04	H	H	H	L	L	L	H	L
05	H	H	L	L	L	L	L	H
06	H	H	L	L	L	L	H	L
07	L	H	L	L	L	H	L	L
10	H	H	L	L	L	H	H	H
11	H	H	H	L	L	L	L	H
12	H	H	L	L	L	L	H	H
13	H	H	L	L	L	H	H	L
14	H	H	L	L	H	L	L	L
15	H	H	L	L	H	L	L	H
16	H	H	L	L	H	L	H	L
17	H	H	L	L	H	L	H	H
20	H	H	L	L	H	H	L	L
21	H	H	L	L	H	H	L	H
22	H	H	L	L	H	H	H	L
23	H	H	L	L	H	H	H	H
24	H	H	L	H	L	L	L	L
25	H	H	L	H	L	L	L	H
26	H	H	L	H	L	L	H	L
27	H	H	L	H	L	L	H	H
30	H	H	L	H	L	H	L	L
31	H	H	L	H	L	H	L	H
32	H	H	L	H	L	H	H	L
33	H	H	L	H	L	H	H	H
34	H	H	L	H	H	L	L	L
35	H	H	L	H	H	L	L	H
36	H	H	L	H	H	L	H	L
37	H	H	L	H	H	L	H	H

REGISTER SELECTED SEE NOTE *1	UNITBUS ADDRESS SEE NOTE *1
RHCS1 & MASSBUS (00)	BASE ADDRS
RHWC	BASE +2
RHBA	BASE +4
MASSBUS (05)	BASE +6
RHCS2	BASE +10
MASSBUS (01)	BASE +12
MASSBUS (02)	BASE +14
MASSBUS (04)	BASE +16
MASSBUS (07)	BASE +20
RHDB	BASE +22
MASSBUS (03)	BASE +24
MAESBUS (06)	BASE +26
MASSBUS (10)	BASE +30
MASSBUS (11)	BASE +32
MASSBUS (12)	BASE +34
MASSBUS (13)	BASE +36
MASS BUS (14)	BASE +40
MASS BUS (15)	BASE +42
MASS BUS (16)	BASE +44
MASS BUS (17)	BASE +46
MASSBUS (20)	BASE +50
MASSBUS (21)	BASE +52
MASS BUS (22)	BASE +54
MASS BUS (23)	BASE +56
MASS BUS (24)	BASE +60
MASS BUS (25)	BASE +62
MASS BUS (26)	BASE +64
MASS BUS (27)	BASE +66
MASSBUS (30)	BASE +70
MASSBUS (31)	BASE +72
MASS BUS (32)	BASE +74
MASSBUS (33)	BASE +76

RHBAE, RHCS3

CONTROLLER	A	B	C	D
SLOT	C-F 27	C-F 31	C-F 35	C-F 39

(PROM TRUTH TABLE)

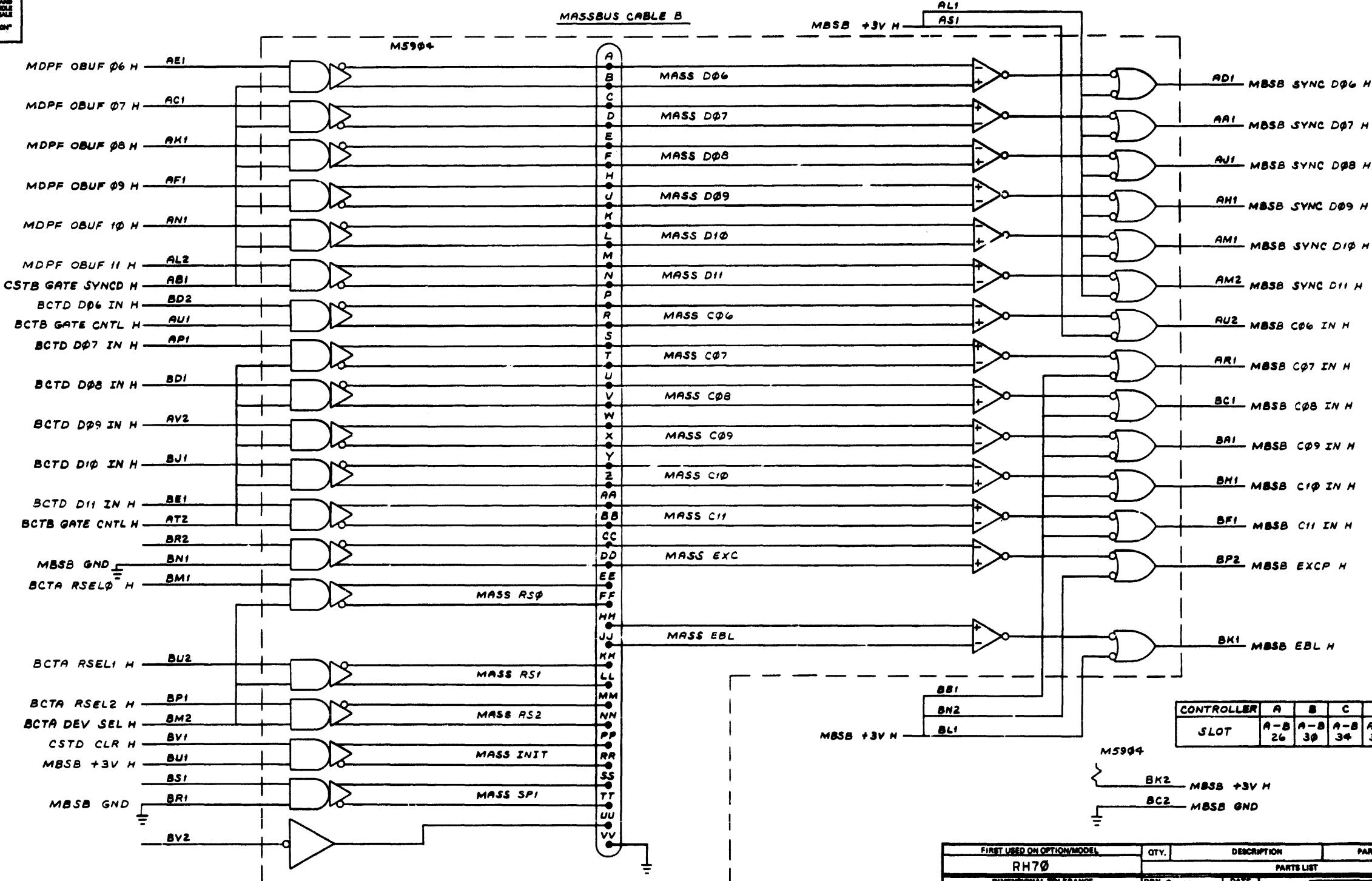
1	REVISIONS	8	7	6	5	4	3	2	1
CHK	CHANGE NO.	REV.							
DRAFT FORM NO. D-100 10-64									
TITLE UNIBUS CONTROL (BCTA) SIZE CODES NUMBER DCS M8153-0-1 REV. A									
SCALE # # SHEET 6 OF 6 DIST. # # # # # # # # # # # #									

8
7
6
5
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2 D 85 RH70-0-1

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FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
RH70					
DIMENSIONAL TOLERANCE		DRN: <i>J. Vincent</i>	DATE: 1-31-75	PARTS LIST	
DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		CHGD. BY: <i>J. Vincent</i>	DATE: 4-7-75		
MILLIMETERS INCHES		ENG'D. BY: <i>J. Vincent</i>	DATE: 4-10-75	TITLE	
UNLESS OTHERWISE SPECIFIED		PROJ. ENG'D. BY: <i>J. Vincent</i>	DATE: 4-10-75	MASSBUS	
MILLIMETERS INCHES ANGLES		PROJ. BY: <i>J. Taylor</i>	DATE: 4-7-75	TRANSCEIVER	
X.XX = ±0.10	.0005	45° 30'		(MBSB)	
X.X = ±0.05	.002				
X = ±.3	.X = ±.1				
THIRD ANGLE PROJECTION		NEXT HIGHER ASY.			
		SIZE CODE NUMBER REV.			
REMOVE SURF AND BREAK SHARP CORNERS SURFACE QUALITY ✓		D 0.5 RH70-0-1			
MATERIAL — H —		B- DD - RH70 - 0			
FINISH — H —		SCALE	— H —	QNT.	
		SHEET	2 OF 3		

8

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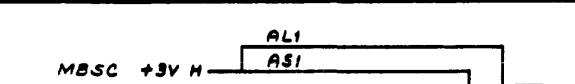
3

2

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MASSBUS CABLE C



DBS RH70-0-1

2

1

DBS RH70-0-1

D

DBS RH70-0-1

D

DBS RH70-0-1

D

DBS RH70-0-1

D

DBS RH70-0-1

C

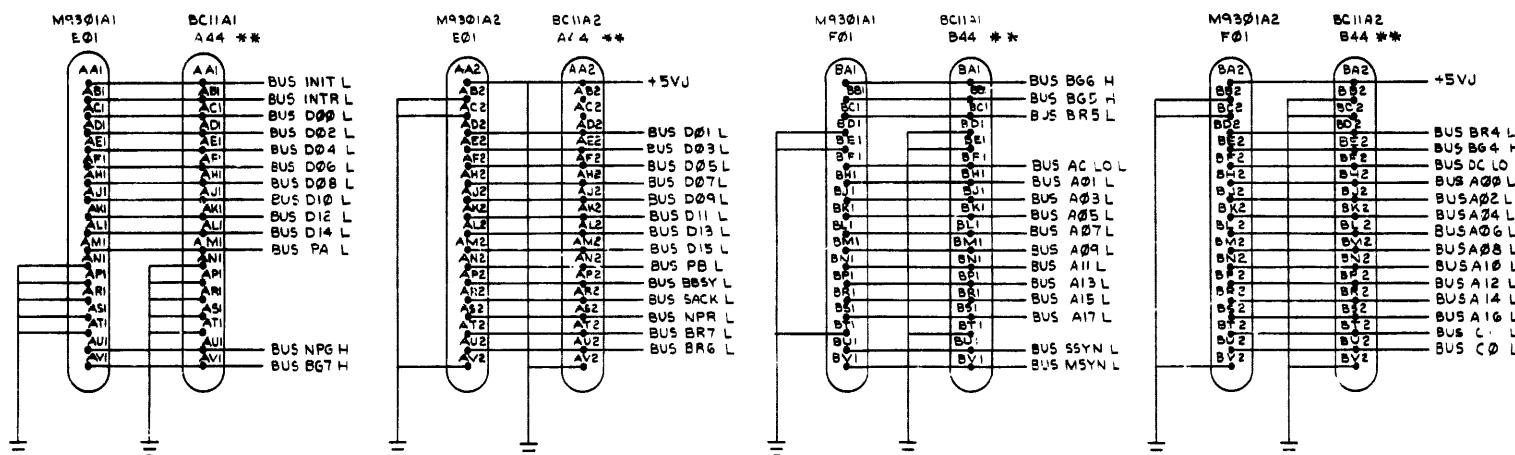
DBS RH70-0-1

B

DBS RH70-0-1

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		UBCD PROC BG 4H		UBCD PROC BG 5H		UBCD PROC BG 6H		UBCD PROC BG 7H		BUS NPG H		BC-II											
		M9301	SPC*1	D40T2	SPC*2	D41T2	SPC*3	D42T2	SPC*4	D43T2	SPC*5	D44T2	RHT0A	D27T2	RHT0B	D31T2	RHT0C	D35T2	RH70D	D39T2	OR	M9302	
		E12T2	F01E2	D40S2	D40T2	D41S2	D41T2	D42S2	D42T2	D43S2	D43T2	D44S2	D44T2	D27S2	D27T2	D31S2	D31T2	D35S2	D35T2	D39S2	D39T2	844E2	
		E12M2	F01B1	D40P2	D40R2	D41P2	D41R2	D42P2	D42R2	D43P2	D43R2	D44P2	D44R2	D27P2	D27R2	D31P2	D31R2	D35P2	D35R2	D39P2	D39R2	844B1	
		KW11-L	KW11-B66H	RHT0A	D27N2	RHT0B	D31N2	RHT0C	D35N2	RHT0D	D39N2	SPC*1	D40N2	SPC*2	D41N2	SPC*3	D42N2	SPC*4	D43N2	SPC*5	D44N2		
		E12P2	F01A1	D01R2	D01V2	D27M2	D27N2	D31M2	D35M2	D39M2	D40M2	D41M2	D42M2	D43M2	D44M2	D44A1							
		SPC*1	D40L2	SPC*2	D41L2	SPC*3	D42L2	SPC*4	D43L2	SPC*5	D44L2	RHT0A	D27L2	RHT0B	D31L2	RHT0C	D35L2	RHT0D	D39L2				
		E12S2	E01V1	D40K2	D40L2	D41K2	D41L2	D42K2	D42L2	D43K2	D43L2	D44K2	D44L2	D27K2	D27L2	D31K2	D31L2	D35K2	D35L2	D39K2	D39L2	A44V1	
		F12D2	E01U1	C40A1	C40B1	C41A1	C41B1	C42A1	C42B1	C43A1	C43B1	C44A1	C44B1										
		*	*	*	*	*	*	*	*	*	*	*	*										



* A TO B JUMPER CONNECTION TO BE REMOVED IF AN NPG DEVICE IS INSERTED IN AN S.P.C. SLOT.
** IF NO UNIBUS DEVICES ARE PRESENT, REPLACE BCII CABLE WITH M9302 UNIBUS TERM.

REVISIONS		CHK	CHANGE NO.	REV.
		071	KBII-B-00004	A
			22	20
			P. DUBRE	2
			C. DUBRE	2
			2	7-1

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
KBII					
DIMENSIONAL TOLERANCE					
DIMENSIONS ARE <u>INCHES</u> UNLESS OTHERWISE SPECIFIED					
ORIG.	5/1/75	DATE			
CHK'D.	5/1/75	DATE			
ENG.	5/1/75	DATE			
PROJ. ENG.	5/1/75	DATE			
PROD.	5/1/75	DATE			
THIRD ANGLE PROJECTION					
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓					
NEXT HIGHER ASSY.					
MATERIAL	B-DD-KBII-B	SIZE CODE	NUMBER		
FINISH	SCALE NONE	SIZE CODE	NUMBER		
	SHEET 1 OF 1	DIST.			

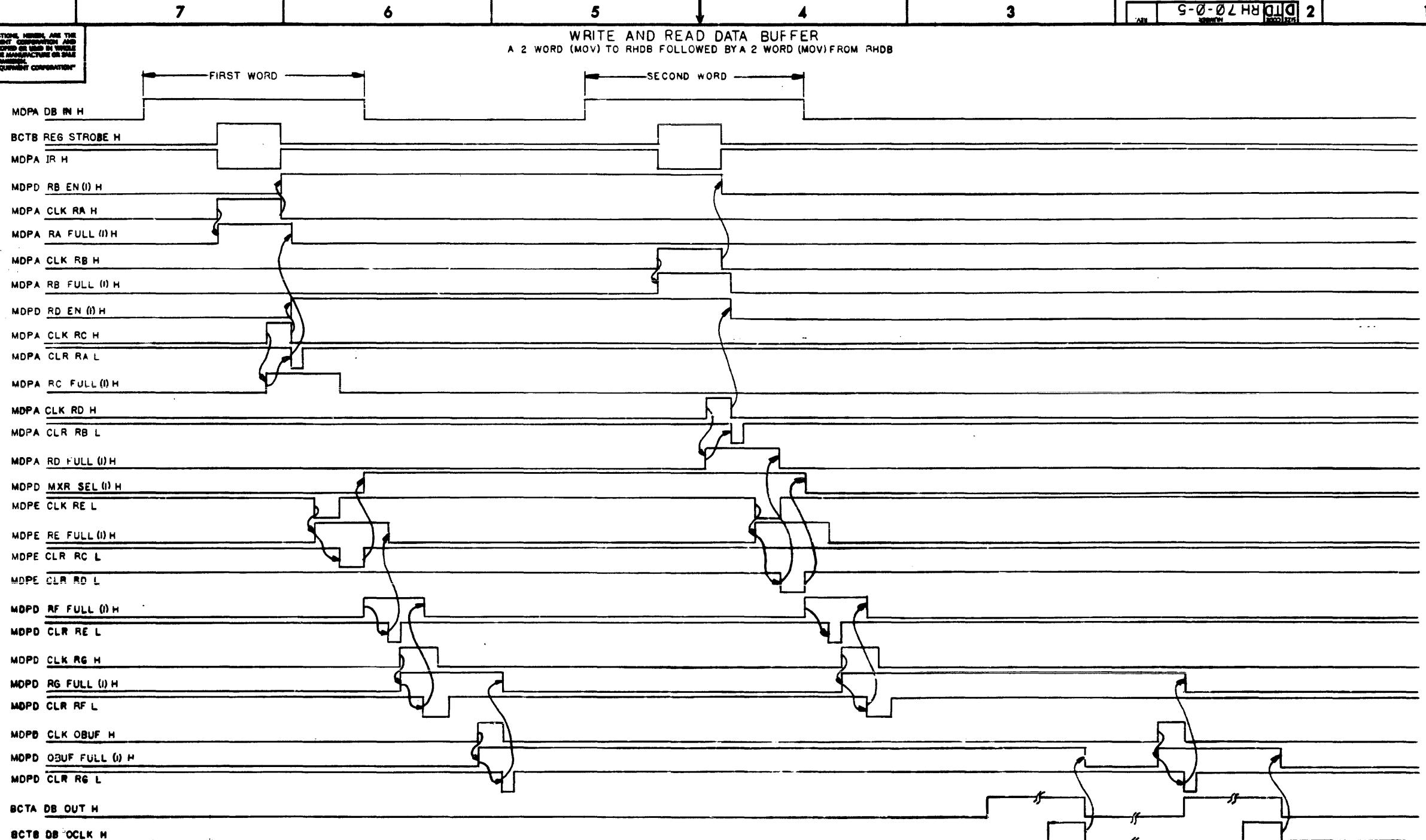
digital

UNIBUS CABLE
AND GRANT CHAIN

SIZE CODE NUMBER REV.

D IC KBII-B-7 A

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(WRITE-READ MAINTENANCE OPERATION)

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.
RH 70				
DIMENSIONAL TOLERANCE		DRW.	DATE	
DIMENSIONS ARE IN MILLIMETERS		W.G. 1/2	3/7/75	
UNLESS OTHERWISE SPECIFIED		CHKD	DATE	
MILLIMETERS INCHES ANGLES		END	DATE	
XXX	= 0.10	0.004	40° 30'	
XX	= 0.0	0.000		
X	= 0.0	0.000		
THIRD ANGLE PROJECTION		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		
		NEXT HIGHER ASY.		
MATERIAL		B-DD-RH70-0		
FINISH		SCALE		
		SHEET 1 OF 4		
		DRAWN BY D. T. D. NUMBER D TD RH70-0-5		

RH 70 DATA
BUFFER TIMING DIAG.

REV. A
1
CHG. NO.
CIR.

1

8

7

6

5

4

3

2

1

8

7

6

5

4

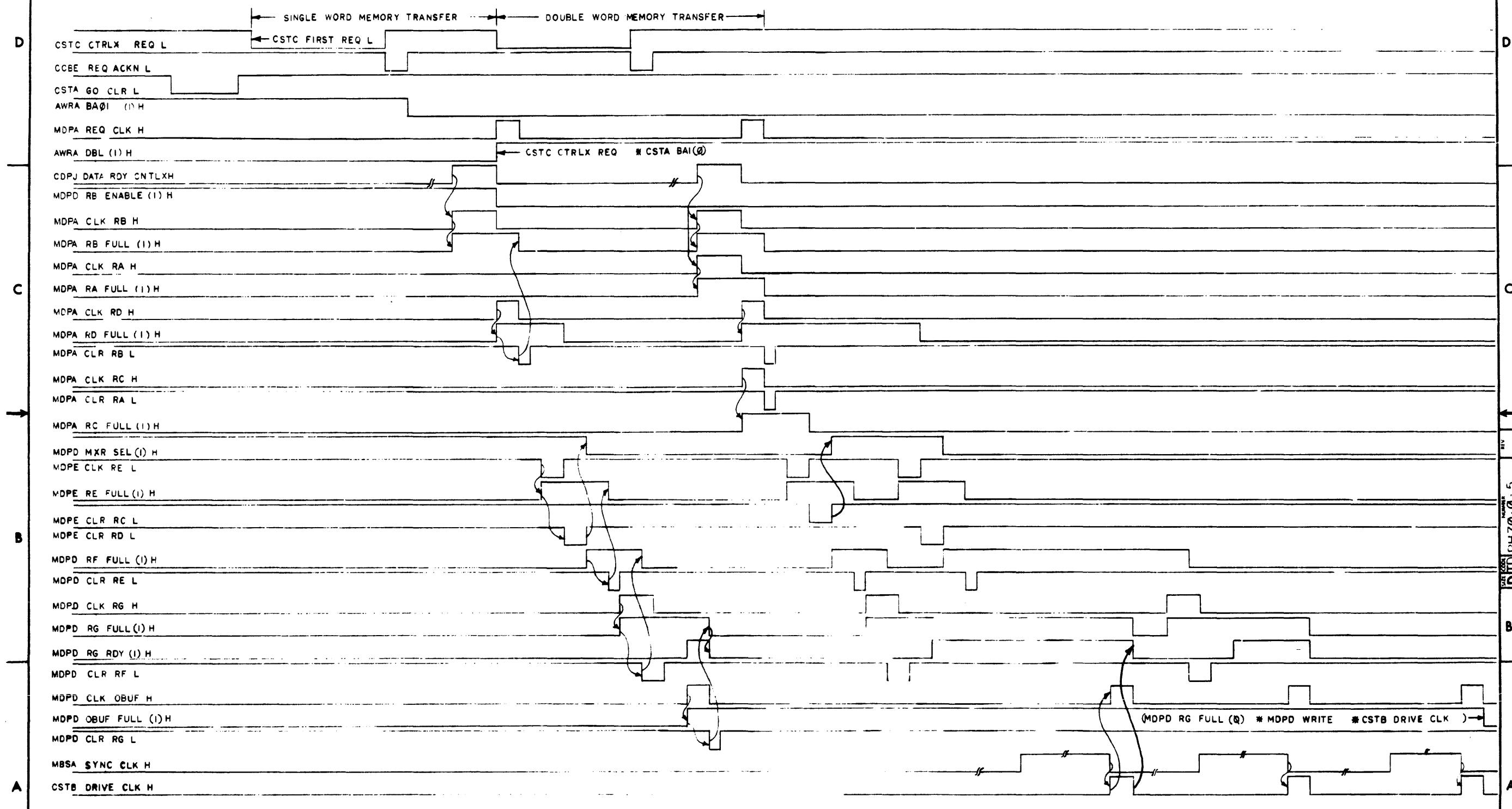
3

2

1

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WRITE COMMAND DATA BUFFER TIMING
3 WORD WRITE STARTING ON AN ODD WORD BOUNDARY (BA01 BIT = 1)
A SINGLE WORD FOLLOWED BY A DOUBLE WORD



REVISIONS		
CHK	CHANGE NO.	REV.
1		

(WRITE COMMAND)

TITLE RH70 DATA BUFFER TIMING DIAG. SIZE CODE D TD NUMBER RH70-0-5 REV.

SCALE 11 SHEET 2 OF 4 DIST.

8

7

6

5

4

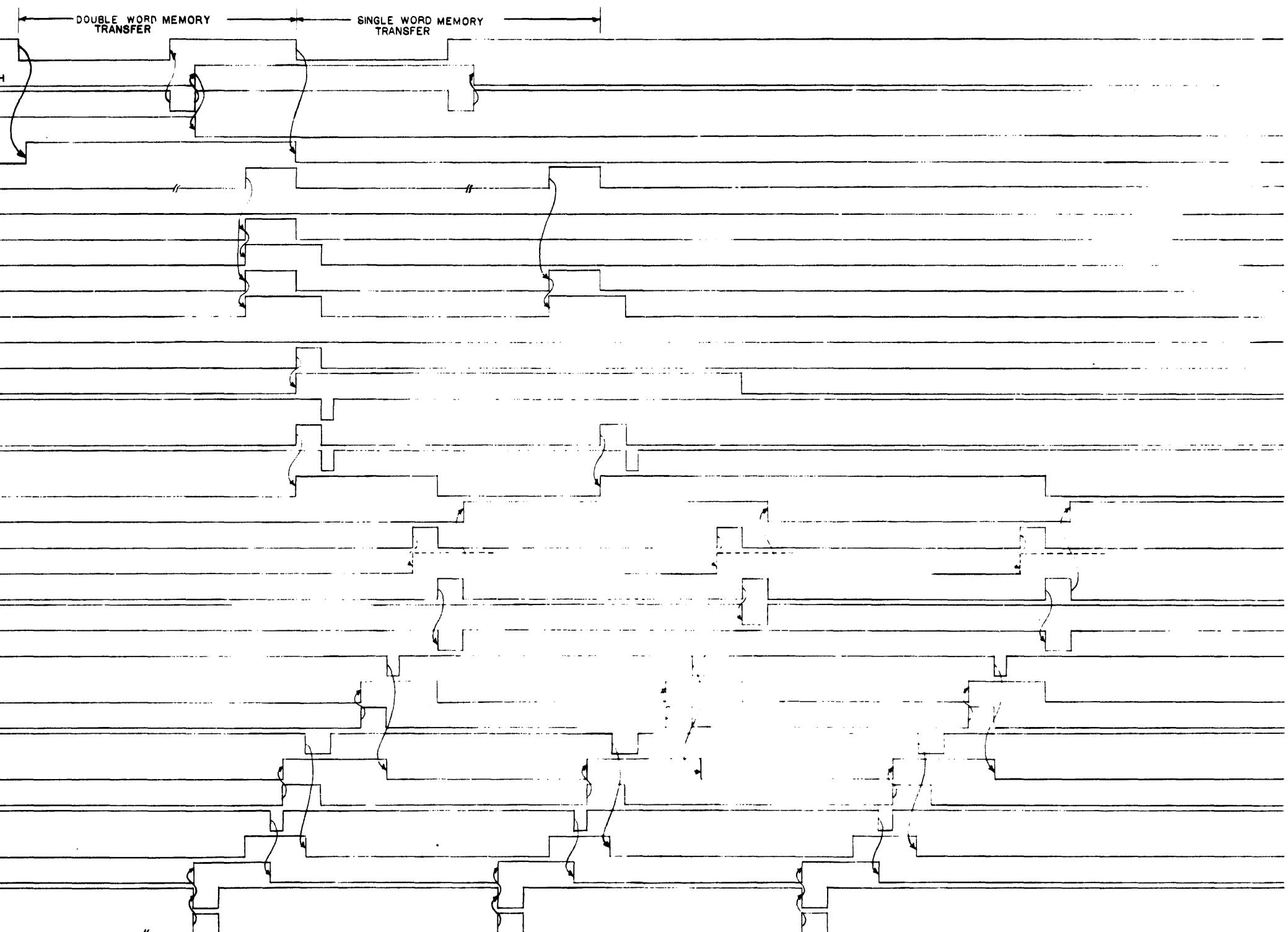
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2

1

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WRITE CHECK DATA BUFFER TIMING
3 WORDS STARTING ON AN EVEN WORD BOUNDARY (BA0 BIT = 0)
A DOUBLE WORD FOLLOWED BY A SINGLE WORD



(WRITE CHECK COMMAND)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: RH70 DATA BUFFER TIMING DIAG
SCALE: 1:1
SHEET 4 OF 4
DRAFTED BY: DATE: 10/10/75
REV. 0-5

8

7

6

5

4

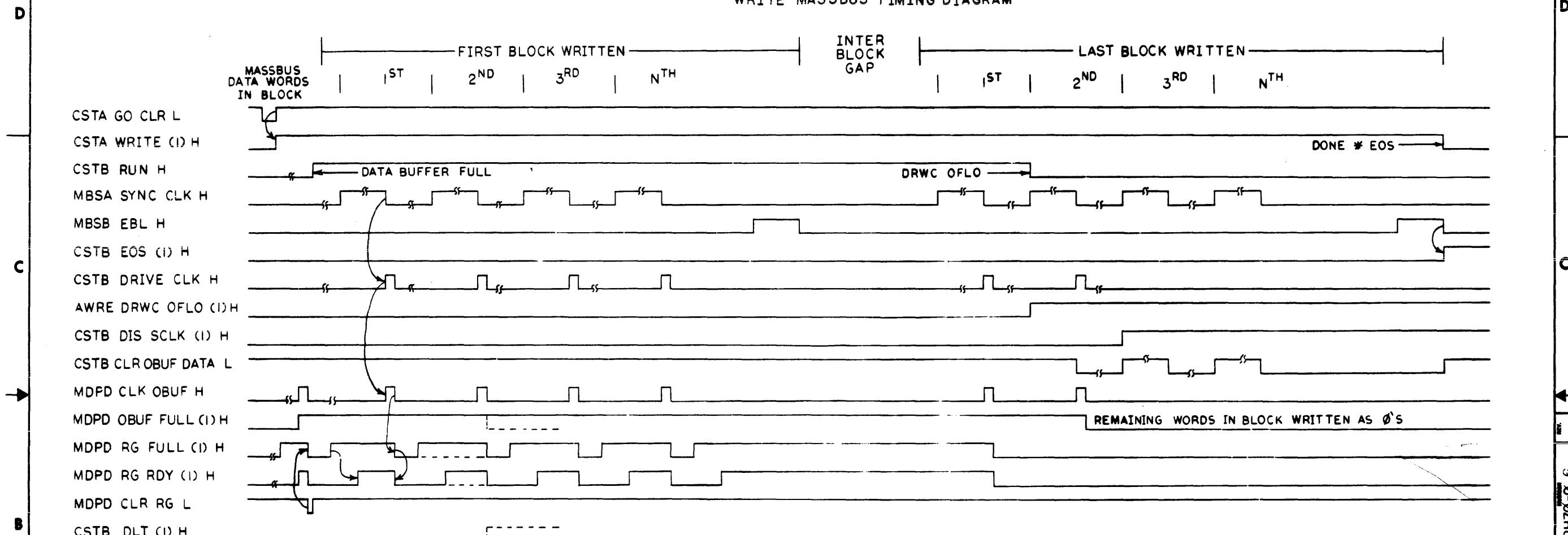
3

2

1

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WRITE MASSBUS TIMING DIAGRAM



REV. F-125
REVAL-395
CHANGE NO.
CHK.

DEC FORM NO.
GPO 100-C

8

7

6

5

4

3

2

1

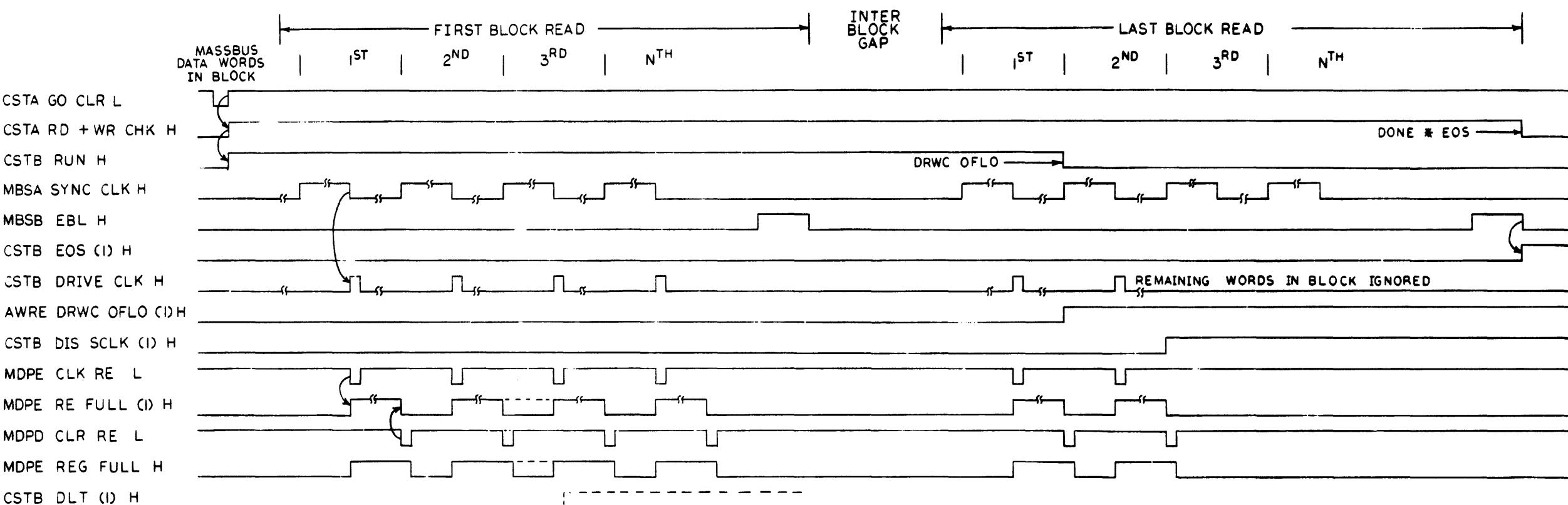
THREE ANGLE PROJECTION		DRN. FIRST USED ON
CHK'D 6-7-75		ENG. 11-1-75
PROJ. ENG. 11-1-75		TITLE
PROD. 4-11-75		W-11-75
REMOVE BURRS AND BREAK SHARP CORNERS		NEXT HIGHER ASB.
DO NOT SCALE DRWG.		MATERIAL B-00-RH70-0
FINISH 		SCALE
		SIZE D
		NUMBER 2
		REV. D

WRITE MASSBUS
TIMING DIAGRAM

Sheet 1 of 1

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READ OR WRITE CHECK MASSBUS TIMING DIAGRAM

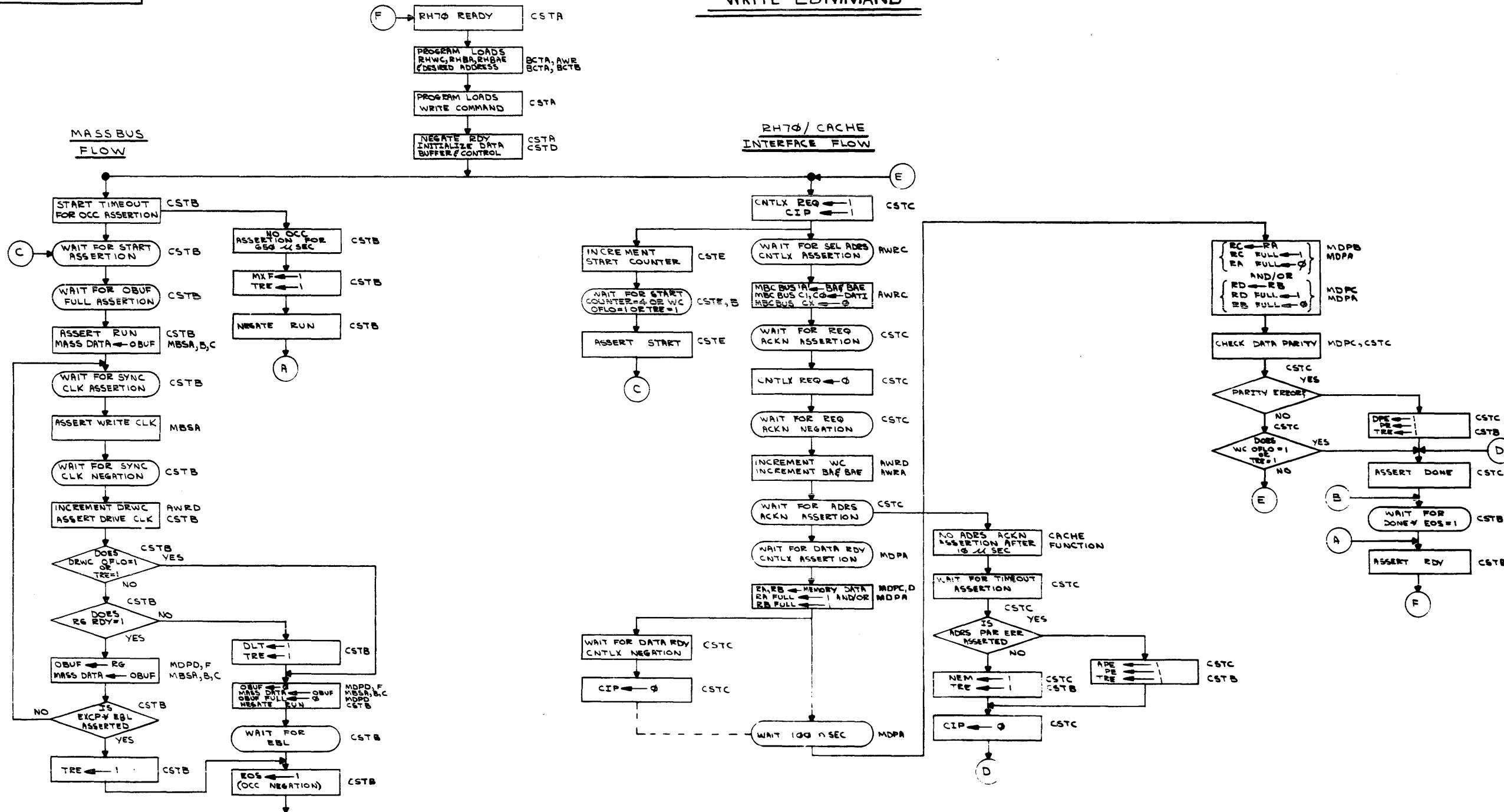


(READ - WRITE CHECK)

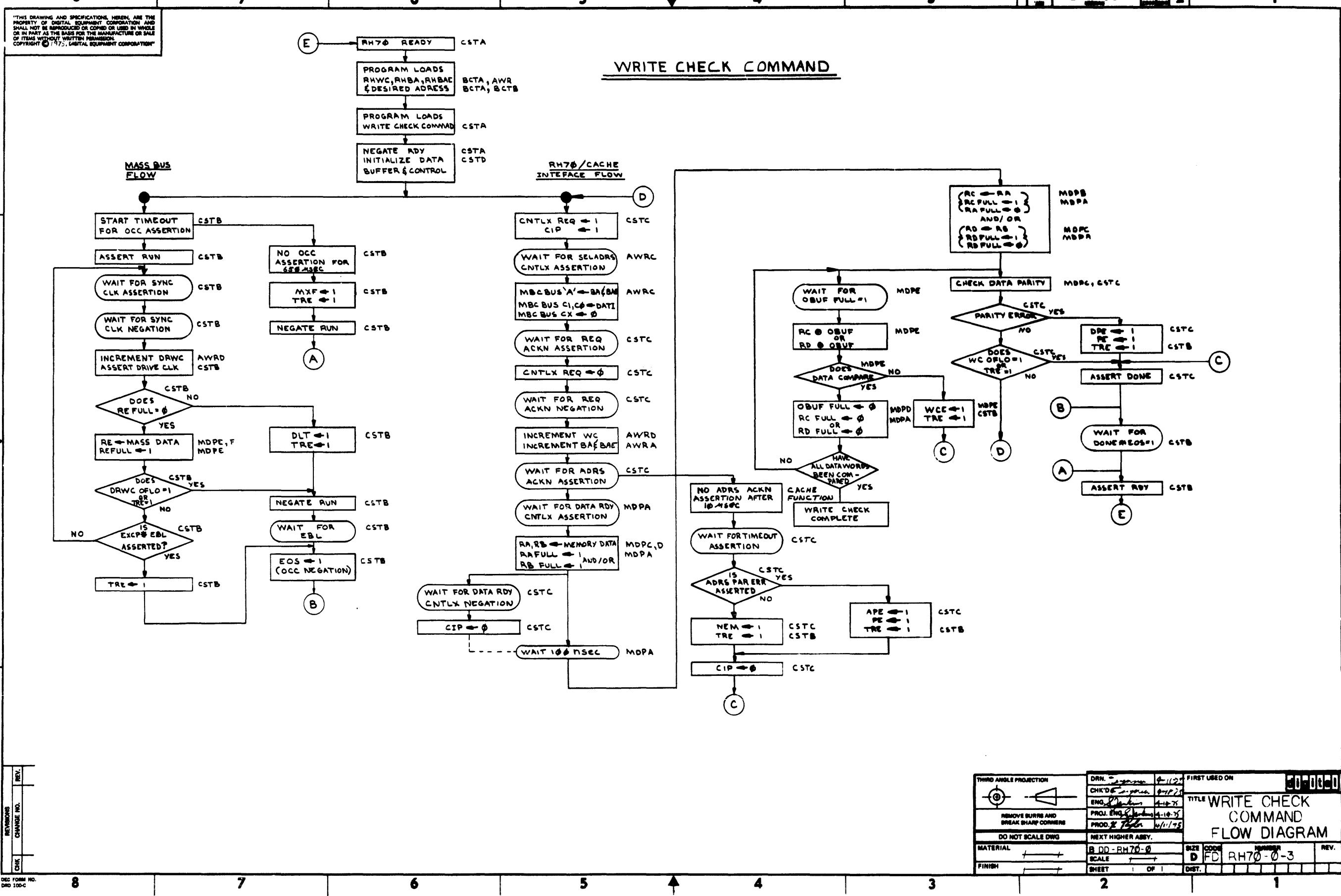
REV.		FIRST USED ON	
REVISION		0000	
CHARGE NO.		TITLE	
CNC		MASSBUS	
CNC		TIMING DIAGRAM	
CNC		TD RH70-0-7	
CNC		REV.	
CNC		1	
CNC		DIST.	
CNC		SHEET 1 OF 1	
CNC		SCALE	
CNC		MATERIAL	
CNC		DO NOT SCALE DWG	
CNC		NEXT HIGHER ASSY.	
CNC		PROJ. ENGR. 100-75	
CNC		ENG'D. 100-75	
CNC		CHK'D. 100-75	
CNC		DRN. 100-75	
CNC		REMOVE BURRS AND BREAK SHARP CORNERS	
CNC		THIRD ANGLE PROJECTION	

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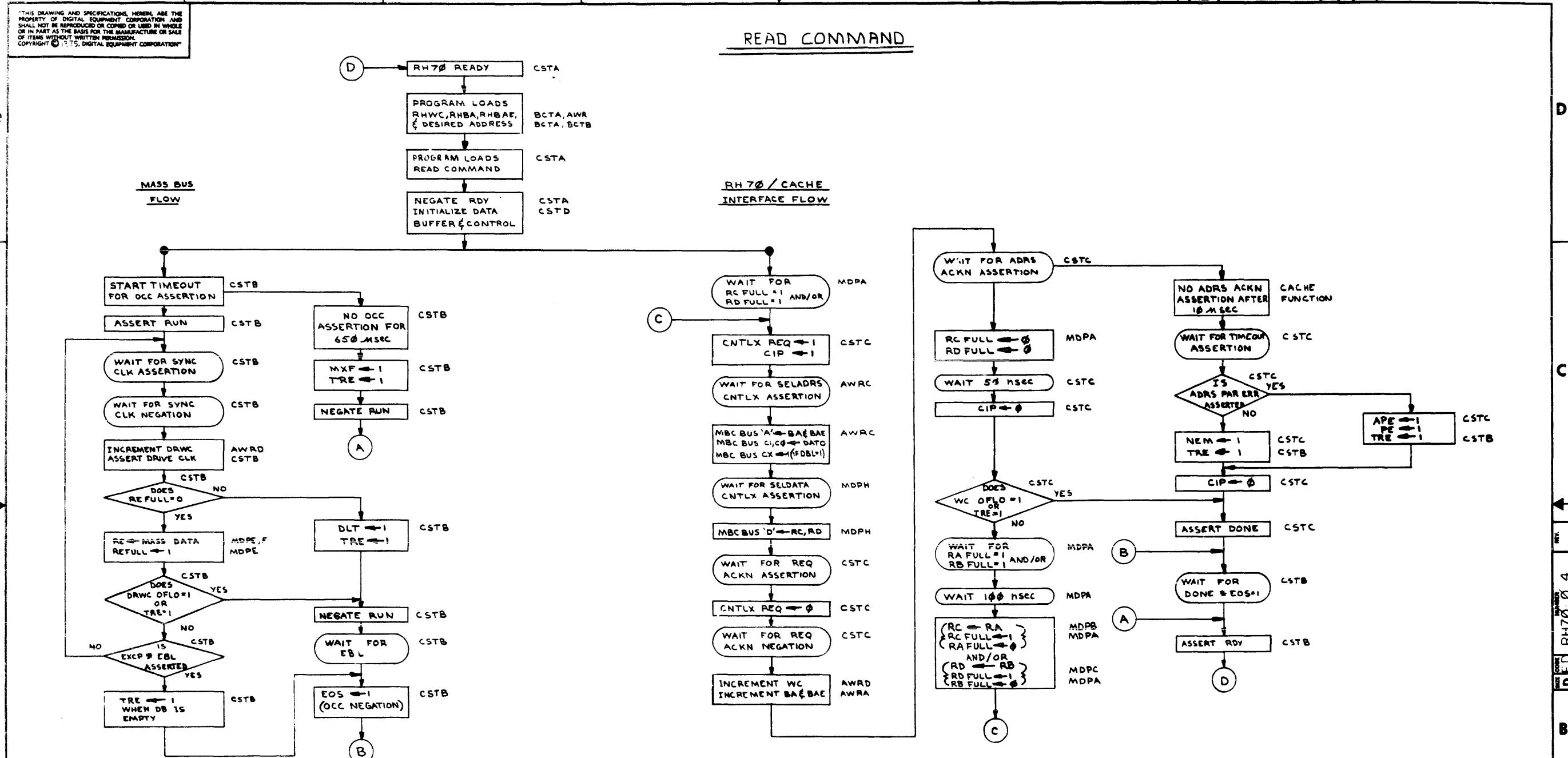
WRITE COMMAND



THIRD ANGLE PROJECTION		DRN. <u>X</u> B	2-28-76	FIRST USED ON <u>RH70</u>	Digitized
 		CHKER <u>...x...</u>	4-1-75	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS		ENG. <u>S. Johnson</u>	4-16-75	WRITE COMMAND FLOW DIAGRAM	
DO NOT SCALE DWG		PROJ. ENG. <u>S. Johnson</u>	4-16-75		
MATERIAL		PROD. <u>Z. Taylor</u>	4-11-75		
FINISH		NEXT HIGHER ASSTY.			
		B- <u>DD</u> -RH70-0		SIZE <u>CODE</u>	NUMBER
		SCALE <u>+</u> <u>+</u>		<u>D</u>	<u>RH70-0-2</u>
		SHEET <u>1</u>	OF <u>1</u>	REV	
		DRAFT.			

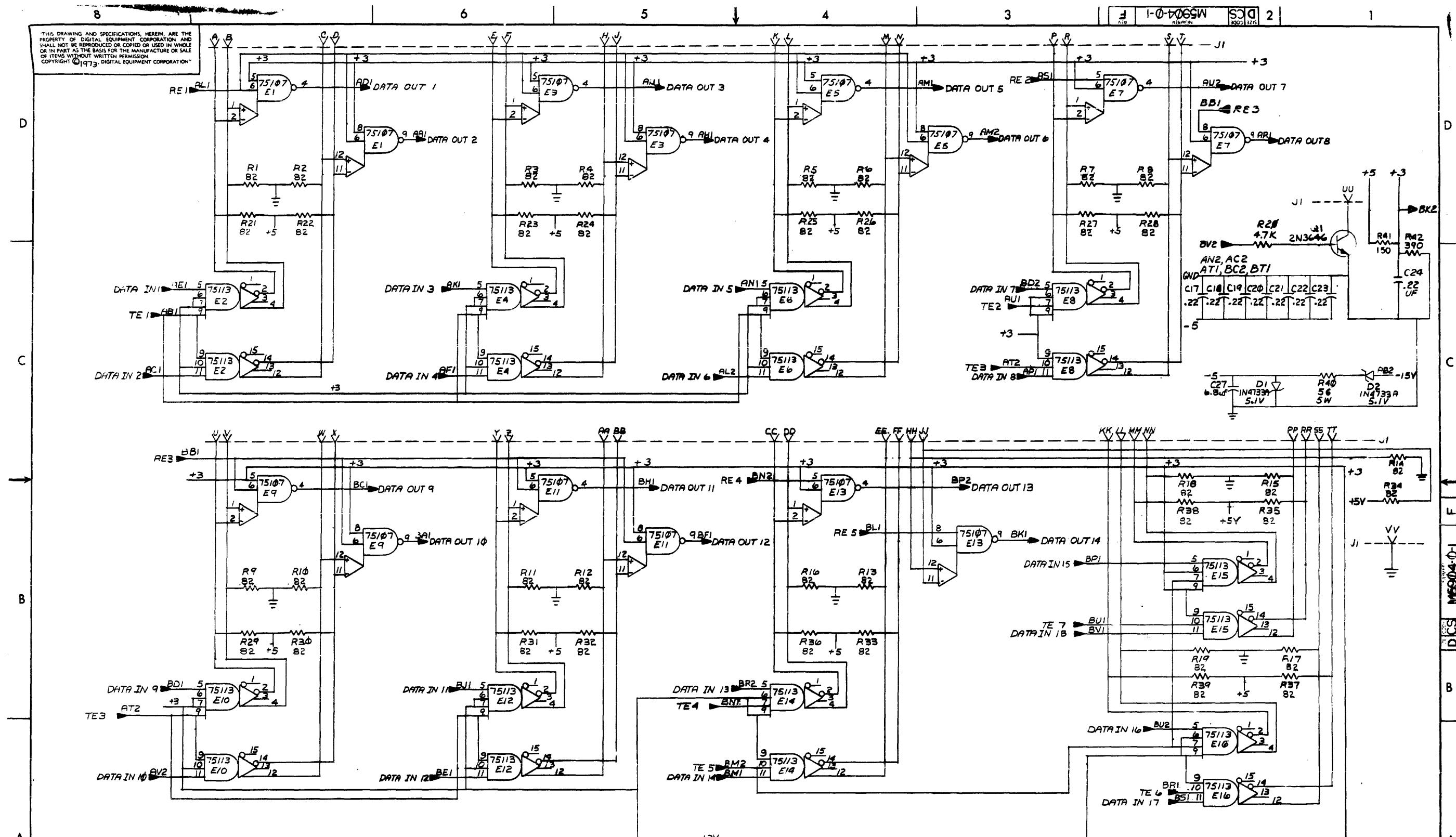


THIRD ANGLE PROJECTION		DRN. -	9-11-22	FIRST USED ON		20-08-20	
 		CHK'D	9-11-22	TITLE		WRITE CHECK	
REMOVE BURRS AND BREAK SHARP CORNERS		ENG.	4-10-75			COMMAND	
		PROJ. ENG.	4-10-75			FLOW DIAGRAM	
		PROD.	4-11-75				
DO NOT SCALE DWG		NEXT HIGHER ASBY.					
MATERIAL		S. DD - RH 70-0		SIZE	CODE	NUMBER	REV.
FINISH		SCALE		D	FD	RH70-0-3	
		SHEET	1 OF 1	DIST.			

READ COMMAND

REVISIONS	REV
CHANGE NO.	
CHK	

THIRD ANGLE PROJECTION	DRN. 100-100	FIRST USED ON	digital
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D 100-100	TITLE	READ COMMAND
DO NOT SCALE DWG	ENG. 100-100	FLOW DIAGRAM	SIZE CODE D FD
MATERIAL	PROJ. ENG. 100-100	NUMBER 100-100-4	REV.
FINISH	PROD. 100-100	SHEET 1 OF 1	DIST.



REVISIONS		
CHK	CHANGE NO.	RE

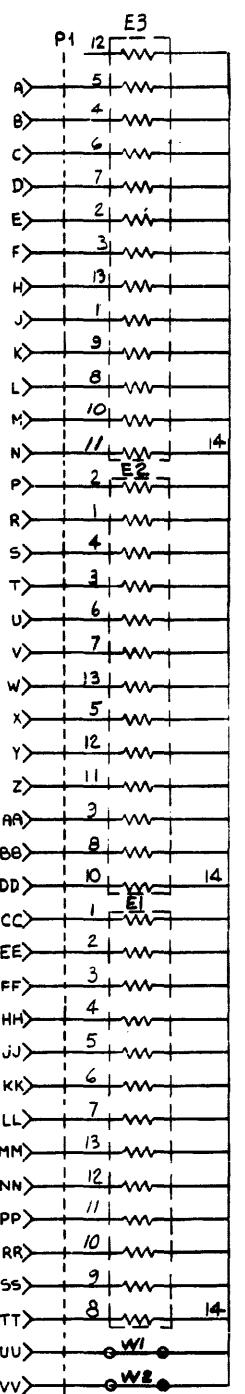
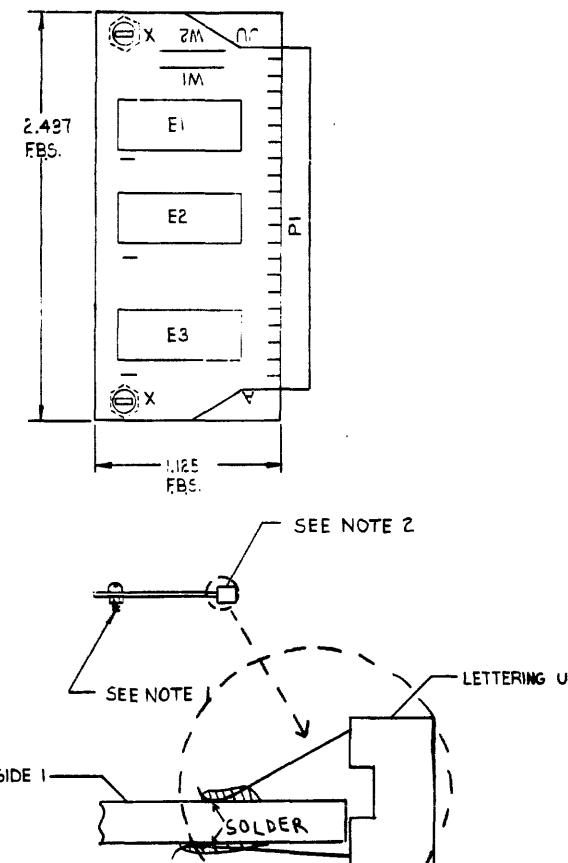
TITLE CONTROLLER TRANSCEIVER	SIZE CODE D CS	NUMBER M5904-0-1	REV. F
SCALE	SHEET 2 OF 2	DIST.	

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NOTES

1. ASSEMBLE (2) SCREW AND NUT TO BOARD, CUT OFF SCREW FLUSH WITH NUT.
2. INSERT BOARD INTO CONNECTOR FINGERS AND SOLDER ON TO BOARD PADS AS PER DETAIL SHOWN, USING TOOLING #9412105-1 AS SOLDERING HOLDING FIXTURE
3. USE TOOLING 9412101-1 TO REWORK PI PRIOR TO ASSEMBLY.



FIRST USED ON OPTION MODEL	QTY	REF DESIGNATION	DESCRIPTION		PART NO.	
			PARTS LIST			
		ETCH BOARD REV	F			
T. STAMBAUGH	3/21/4870	000002	DRA. B.F. Beasley	DATE 1-8-74		
T. STAMBAUGH	3/21/4870	000001	CMM'D. <i>LeBlanc</i>	DATE 1-9-74		
T. STAMBAUGH	3/21/4870	000001	END. <i>LeBlanc</i>	DATE 3-2-74		
T. STAMBAUGH	3/21/4870	000001	PROD. <i>LeBlanc</i>	DATE 3-2-74		
T. STAMBAUGH	3/21/4870	000001	PROD. <i>LeBlanc</i>	DATE 3-2-74		
			NEXT HIGHER ASSY			
			SCALE	NONE		
	DEC NO.	EIA NO.	DEC NO.	EIA NO.	SIZE CODE	
	SEMICONDUCTOR CONVERSION CHART				NUMBER	
					DCS H870-0-1	REV. B
					DIST.	

IC PIN LOCATIONS